

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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No. 2349.—Vol. L.

LONDON, SATURDAY, AUGUST 28, 1880.

[WITH SUPPLEMENT.] PRICE SIXPENCE.
PER ANNUM, BY POST, £1 4s.

R. JAMES H. CROFTS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of MINING Stocks and Shares (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraph, Tramway, Shipping, Canal, Gas, and Dock Shares, and all Miscellaneous Shares.

Business negotiated in Stocks and Shares not having a general market price. Every Friday a general and reliable List issued (a copy of which will be forwarded regularly on application), containing closing prices of the week.

MINES INSPECTED.
BANKERS: CITY BANK, LONDON—SOUTH CORNWALL BANK, ST. AUSTELL.

SPECIAL DEALINGS in the following, or part—
30 Hingston Down, 18s 9
30 Javali, 5s. 6d.
30 Killfret, 3s.
30 Leadhills, £2 2s. 6d.
30 Marke Valley, £2 1s 3
25 Nouveau Monde, 15s
20 N. Penstruthal, £1 16 3
10 N. Herodsfoot, 8s. 9d.
50 Pandora, 12s. 9d.
50 Port Phillip, 8s.
25 Prince of Wales, £1 1/4
50 Prince Patrick.
100 Parys Copper, £1 5s.
25 Penstarens, 5s. 6d.
20 Ruby, £7.
15 Richmond, £15 2s. 6d.
20 Roman Grav., £10 8 9
70 S. Indian Gold, £1 12 6
20 Santa Barbara, £1 18 9
10 So. Condurow, £10 1/4
35 South Durran, £2 6 3
25 So. E. Wynad, £1 11 3
25 S. Penstruthal, 11s.
25 Tankerville, £3.
25 West Phoenix, £10 1/4
25 Wheel Crebor, £2 2 6

RAILWAYS—SPECIAL BUSINESS.
FOREIGN BONDS—SPECIAL BUSINESS.
Fortnightly accounts opened on receipt of the usual cover.

JAMES H. CROFTS, 1, FINCH LANE, LONDON.
ESTABLISHED 1842.

B. W. H. BUMPUS, STOCK AND SHARE BROKER,
AND MINING SHARE DEALER,
44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES and MISCELLANEOUS SHARES of every description.
RAILWAYS, BANKS, FOREIGN and COLONIAL BONDS.
RAMWAYS, TELEGRAPHS, and all the LEADING INVESTMENTS.
Accounts opened for the Fortnightly Settlement
A List of Investments free on application.

BUMPUS has SPECIAL BUSINESS in the undermentioned:—
40 East Lovell, 16s.
5 East Pool.
100 English-Austra. Gold.
50 E. Caradon, £2.
20 East Van.
50 Frontino, £3 8s. 9d.
100 Flagstaff, 14s.
100 Glenroy, 15s.
50 Ganton, 28s. 6d.
60 Hingston, 23s.
100 Herodsfoot, £3 1/4.
100 Indian Glenrock, 28s 6
20 Leadhills.
15 Mellanear.
40 Marke Valley.
100 New Penstruthal, £1 10 1/4.
40 New Quebrada, £3 17s
100 Nouveau Monde, 13s 6
75 Parys Copper, 25s.
50 Pen-y-Orsedd.
100 Port Phillip, 8s. 6d.
40 Port Nigel.
100 Penstarens, 5s.
30 Prince of Wales.
25 Ruby, £6 19s.
20 Richmond, £15 1/4.
10 Roman Gravels, £10.
15 Rio Tinto, £15 11s. 3d.
50 South Indian, 31s. 6d.
75 S. East Wynad, 31s 6
5 Tincroft, £18 1/4.
50 West Holway.
30 Wheel Sisters, £3.
25 West Phoenix.
100 Wh. Grenville, £10 1/4.
100 Wh. Jewell, 15s.
5 Wheel Peavor.

SPECIAL BUSINESS, at close prices, in the SHARES of all the principal HOME and FOREIGN MINES.

Bumpus devotes special attention to these Securities, and is in a position to give reliable information and advice to intending investors and others.

Shares in SOUND TIN MINES should now be bought for an important market value and good dividends. The following are particularly recommended:—
WHEAL GRENVILLE.
WHEAL PEEVOR.
WHEAL PEEVOR.

WILLIAM HENRY BUMPUS, SWORN BROKER.
OFFICES: 44, THREADNEEDLE STREET, LONDON, E.C.
ESTABLISHED 1867.

BERNARD R. KIRK, 5, BIRCHIN LANE,
LONDON, E.C.
FORTNIGHTLY ACCOUNTS opened, on receipt of the usual "cover," in any Home and Foreign, Mining Shares, Foreign Bonds, and certain Miscellaneous Securities.

THE WEEK.—A SEPARATE EDITION from that which appears in the Mining Journal is published every Wednesday evening, containing "Notes and Prices on the Stock Markets," with Closing Prices. May be had on application.
BANKERS: LONDON AND WESTMINSTER, Lothbury.

R. E. J. BARTLETT, BRITISH AND FOREIGN STOCK
AND SHARE DEALER, No. 30, GREAT ST. HELEN'S, LONDON, E.C.
PEN-Y-ORSEDD, GREAT HOLWAY, and WEST HOLWAY shares should be a great rise—rich courses of ore proved.
JUST OUT,
"HOW TO INVEST," post free, 1s., Fourteenth Edition, much enlarged.

R. THOMAS THOMPSON, JUN., STOCK BROKER,
16, ST. SWITHIN'S LANE, E.C.
Thompson transacts business in every species of Stock Exchange and Mining Securities.

Thompson affords reliable information to investors, and can give, when required, a list of first-class Stocks and Shares, yielding 4 to 10 per cent. dividends at present prices.
Thompson's weekly Circular may be had on application.

R. CHARLES J. SIMS,
STOCK AND SHARE DEALER,
2, DRAPER'S GARDENS, LONDON, E.C.

R. GEORGE BUDGE, STOCK AND SHARE DEALER,
9, GRACECHURCH STREET, LONDON, E.C. (Established 28 years).
ALL BUSINESS TRANSACTIONS FREE OF ANY CHARGE FOR COMMISSION.

Notice to Investors and Speculators.
BUDGE has DEALINGS in—
50 Frontino.
100 Flagstaff.
25 Gunnislake (Clitters).
75 Ganton.
20 Grogwinion.
50 Glenroy.
20 Glenrock.
35 Hingston Down.
100 Herodsfoot.
100 Ladywell.
20 Levant.
50 North D'Esresby.
30 New Wye Valley.
95 New Kitty.
50 North Penstruthal.
40 Port Nigel.
70 Prince of Wales.
50 Ruby.
100 South Penstruthal.
50 South Devon.
100 South East Wynad.
100 South East Van.
75 Wheel Jewell.
50 West Kitty.
50 West Phoenix.
50 Wheel Sisters.
These shares should be bought at once as an investment. The sale of tin ore on August 4 for four months was over 5 tons, realising £274 10s. 4d. See report.
SPECIAL DEALINGS in New Kitty as buyer or seller.

STOCK AND SHARE MARKETS.

Prices of STOCKS and SHARES in RAILWAYS, BANKS, ENGLISH and FOREIGN GOVERNMENT SECURITIES, GAS, MINES, INSURANCE, and other Stock Exchange Securities, and various important information forwarded on application to—

Messrs. PETER WATSON AND CO.,
18, AUSTIN FRIARS,
OLD BROAD STREET, LONDON, E.C.
BUYER and SELLER of SHARES at the close Market Price of the day.
BANKERS: THE ALLIANCE BANK (Limited).

Messrs. PETER WATSON AND CO.'S
BRITISH AND FOREIGN MONTHLY MINING NEWS
—STOCK AND SHARE INVESTMENT NOTES—MINES,
MINERALS, AND METAL MARKETS—SHARE LIST,
No 821, Vol. XV., for AUGUST month, is now ready,
and will be sent to customers on application.

Annual Subscription..... 5s. | Single Copy..... 6d.

Messrs. PETER WATSON AND CO.,
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M. ALFRED E. COOKE,
DEALER in BRITISH and FOREIGN STOCKS and SHARES
of EVERY DESCRIPTION.
76, OLD BROAD STREET, LONDON.
ESTABLISHED 1853.

Shares in two of the mines recommended last week have ALREADY ADVANCED—PRINCE OF WALES from 21s. to 24s., and WEST KITTY from 21 1/2 to over £2. The following are WORTH BUYING:—

Price about.	Price about.
Prince of Wales..... £1 4 0	Polrose..... £1 15 0
East Buller..... 1 6 0	Trevince..... 0 16 3
Parys..... 1 3 9	North D'Esresby..... 1 0 0
North Herodsfoot..... 0 8 0	East Crebor..... 0 15 0
Ganton..... 1 7 6	Pandora..... 0 17 6

All shares supplied at LOWEST MARKET PRICE NET.
Clients desiring a personal interview are informed that Mr. Cooke's offices are on the GROUND FLOOR in one of the principal thoroughfares of the City—one minute from the BANK OF ENGLAND, and adjoining the Stock Exchange and Mining Markets, with which they are now in DIRECT TELEGRAPHIC COMMUNICATION. The system of advertising shares at fixed prices is in most cases a delusion. Shares can generally be obtained on better terms.
Large profits have been made on recommendations in the INVESTOR'S GAZETTE and INVESTMENT NOTES in the MINING JOURNAL.

DAILY LIST OF PRICES ISSUED TO CLIENTS.
ALFRED E. COOKE,
76, OLD BROAD STREET, LONDON.
ESTABLISHED 1853.

M. JAMES STOCKER, STOCKBROKER,
2, CROWN COURT, THREADNEEDLE STREET, LONDON, E.C.

JOHN B. REYNOLDS, STOCK AND SHARE DEALER,
37, WALBROOK, LONDON, E.C.
ESTABLISHED 22 YEARS.
BANKERS: LONDON JOINT STOCK BANK.

Business transacted at net prices, and with great dispatch, in BANKS, RAILWAYS, FOREIGN BONDS, BRITISH and FOREIGN MINES, and all other Securities, especially those not generally quoted on the markets.
Mr. REYNOLDS directs the attention of his correspondents to the accuracy of his anticipations respecting the Tin Market, and believes that a permanent improvement has set in, and that higher prices will be reached.
Mr. REYNOLDS considers a great rise in many of the principal Tin Mines as inevitable, and is himself prepared to buy largely for his correspondents.
Business transacted and references exchanged, when satisfactory, in any part of Great Britain.
See Mr. REYNOLDS's remarks on page 973.

NOTICE OF REMOVAL.
GRANVILLE SHARP,
TO
32, QUEEN VICTORIA STREET, LONDON, E.C.

M. JOHN RISLEY, STOCK AND SHARE BROKER,
38, CORNHILL, LONDON E.C.
WEST CARADON and NEW WEST CARADON shares specially recommended.

Messrs. ENDEAN AND CO., STOCK AND SHARE
DEALERS, 85, GRACECHURCH STREET, LONDON, E.C.
ESTABLISHED 1861.
BANKERS: LONDON AND WESTMINSTER, Lothbury; and
BARCLAY, BEVAN, and CO., Lombard-street, E.C.

Messrs. THOMSON AND CO.,
STOCK AND SHARE DEALERS.
88, BISHOPSGATE STREET, E.C.
BANKERS: ROYAL EXCHANGE.

Business transacted in every description of Stocks and Shares.
TREVINCE CONSOLS.—Again we call attention to this mine. There will be an extraordinary rise in the price of these shares very shortly. We have only a limited number left to dispose of, the price now being 16s. 3d. The property has been inspected by Capt. Maynard, of East Pool, Capt. White, of Wheel Peavor, and others. Copies of their reports will be forwarded on application. We refer readers to the agents' report in this week's Journal.

M. SAMUEL JAMES, STOCK AND MINING
SHARE DEALER,
13, ANGEL COURT, THROGMORTON STREET, LONDON, E.C.

Mr. JAMES begs to inform his friends and the investing public that he has REMOVED from REDRUTH, and COMMENCED BUSINESS at the ABOVE ADDRESS.

Mr. JAMES's long connection with the Mining Market in conjunction with his father, Capt. A. T. James, places him in an unusually good position for executing orders in this department to the greatest possible advantage of his clients.

MINES INSPECTED AND REPORTED UPON.

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29, BISHOPSGATE STREET, LONDON, E.C.

Can SELL the following SHARES at prices annexed:—
50 Almada, 8s. 6d.
25 Bedford Unit., 24s.
25 Birdseye, 22s. 6d.
50 Bwlich United.
25 Cambrian, 30s.
50 Canada Corp., £1 12s 6
20 Carnarvon, 16s. 3d.
25 Colorado, £2 7s. 6d.
50 Don Pedro, 8s. 9d.
25 East Caradon, £2.
40 East Roman, 15s.
20 East Van, £2 1/2.
50 Flagstaff, 14s. 6d.
20 Frontino, £3 10s.
20 Glenrock Gold, £1 7 6
25 Hingston, £1 1s.
20 Leadhills, £3 5s.
25 Marke Valley, £2.
25 New Quebrada, £3 18 9
30 No. D'Esresby, 21s.
50 Nou. Monde, 16s. 3d.
50 Parys Corp., £1 5s.
20 Panuclillo, £4 10s.
30 Prince of Wales, 23s 6
50 Port Phillip, 8s. 6d.
50 Trevince Cons., 18s 9d.
50 Pestarens, 5s.
20 Ruby Silver, £7 1/2.
10 Roman Gravels, £10.
50 So. E. Wynad, £1 11 3
20 S. Indian Gold, £1 12 6
10 Tankerville, £3.
5 Van, £19 1/2.
50 Victoria (London).
25 West Caradon, £2 2s 6
5 W. Chiverton, £1.
10 Wheel Crebor, £4 1/4.
50 Trevince Cons., 18s 9d.

WEST LISBURN MINES strongly recommended.
Particulars on application.

ROYAL SCHOOL OF MINES.

DEPARTMENT OF SCIENCE AND ART.

During the THIRTIETH SESSION, 1880-81, which will commence on the 1st of October, the following COURSES OF LECTURES and PRACTICAL DEMONSTRATIONS will be given:—

- 1.—CHEMISTRY..... By E. FRANKLAND, Ph.D., D.C.L. F.R.S.
- 2.—BIOLOGY..... By T. H. HUXLEY, LL.D., F.R.S.
- 3.—MINERALOGY..... By W. ARINGTON W. SMYTH, M.A., F.R.S., Chairman.
- 4.—MINING..... By JOHN W. JUDD, F.R.S.
- 5.—GEOLOGY..... By T. M. GOODEVE, M.A.
- 6.—APPLIED MECHANICS..... By FREDERIC GUTHRIE.
- 7.—PHYSICS..... By W. CHANDLER ROBERTS, F.R.S.
- 8.—METALLURGY..... By Rev. J. H. EDGAR, M.A.
- 9.—MECHANICAL DRAWING..... By Rev. J. H. EDGAR, M.A.

The Lecture Fees for Students desirous of becoming Associates are £30 in one sum on entrance, or two annual payments of £20, exclusive of the Laboratories. Tickets to separate Courses of Lectures are issued at £3 and £4 each. Officers in the Queen's Service, Her Majesty's Consuls, Acting Mining Agents and Managers, may obtain Tickets at reduced prices. Science Teachers are also admitted to the Lectures at reduced fees. For particulars (free), or for Official Programmes (price 6d., by post 7d.), apply to the Registrar, Royal School of Mines, Jermyn-street, London, S.W.

F. W. RUDLER, Registrar.

M. CHARLES THOMAS,
MINING AGENT, STOCK AND SHARE DEALER,
3, GREAT ST. HELEN'S, LONDON, E.C.

M. ALFRED THOMAS,
MINING AGENT, AND STOCK AND SHARE DEALER,
10, COLEMAN STREET, LONDON, E.C.

Just published.
MINING INVESTMENTS.
"What to Select, and What to Avoid," by ALFRED THOMAS, 10, Coleman-street, London, E.C. Will be forwarded on receipt of 12 stamps.

TO INVESTORS, SHAREHOLDERS, TRUSTEES.
SAFE DIVIDEND INVESTMENTS PAYING 4 TO 6 AND 10 PER CENT.
PER ANNUM ON PRESENT OUTLAY.

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The AUGUST EDITION (post free),
SHOULD BE CONSULTED BY INVESTORS AND SHAREHOLDERS.

It is a Reliable "Guide," giving valuable information and Sound Advice, &c. It gives Market prices; Dividends upon outlay, when payable; Reports, &c., &c.

IT CONTAINS ALL THE SAFE INVESTMENTS IN THE FOLLOWING:—
English, Foreign Railways.
Preference, Debenture Stocks.
British, American Stocks.
Bank, Financial Shares.
Tramway, Telegraph Shares.
Municipal Bonds.

Insurance, Gas, Waterworks.
Colonial, Foreign Stocks.
British, Foreign, Colonial Mines.
Tea, Land Shares.
Shipping, Dock Shares.
Miscellaneous Shares, &c., &c.

HENRY GOULD SHARP, STOCK AND SHARE BROKER,
42, POULTRY, LONDON, E.C.—ESTABLISHED 1852.

BANKERS: LONDON AND WESTMINSTER, Lothbury, London, E.C.

M. EDWARD ASHMEAD, 2, DRAPER'S GARDENS,
LONDON, E.C.
MINING SECRETARY, AUDITOR, AND ACCOUNTANT.

HORACE J. TAYLOR, STOCK AND SHARE DEALER,
38, GREAT ST. HELEN'S, LONDON, E.C.
(Late of the PORT PHILLIP AND VICTORIA MINING COMPANIES.)
BANKERS: CENTRAL BANK OF LONDON (Limited).

BEAZLEY AND CO., MINING AGENTS AND MINE
SHARE DEALERS,
9d, NEW BROAD STREET, LONDON, E.C.

Recommend the PURCHASE OF SHARES FOR INVESTMENT in the
NORTH D'ERESBY MOUNTAIN LEAD COMPANY
(LIMITED).
THE MINE IS OPENING WELL. See agents' reports in this day's papers.

M. W. B. COBB, STOCK AND SHARE DEALER,
29, BISHOPSGATE-STREET, LONDON, E.C.

Business transacted in every description of Stocks and Shares. Fortnightly accounts opened on receipt of usual cover.

BANKERS: ALLIANCE BANK (Limited).

PENNINGTON AND CO., SWORN BROKERS,
3, ROYAL EXCHANGE BUILDINGS, E.C.

Transact business in every description of Stocks and Shares.
ESTABLISHED 1869.—BANKERS: ALLIANCE.

TREVINCE CONSOLS.—We confidently believe these shares will have a great rise in a short time, and advise their immediate purchase at 16s. 3d. We refer investors to the captain's report in this week's Journal.

SPECIAL BUSINESS in Gold Coast, New Gold Run, Canadian Copper, New Cathedral, and Devonport and Tiverton Brewery shares, at par, &c.

M. W. TREGELLAS, 40, BISHOPSGATE STREET
WITHIN, E.C.

Deals in all descriptions of STOCKS and SHARES at close market prices, and is always in a position to do business in SANTA BARBARA, PITANGUI, and BRAZILIAN GOLD MINES.

M. T. P. THOMAS, MINING AGENT, AND STOCK AND
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Advice given, founded on Forty Years' practical Mining Experience, and shares supplied at the net market prices of the day.

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Immediate application for shares should be made to
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For particulars on the above properties, apply to—
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Monthly Investment Circulars post free on application.

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(Fourteen Years at the Great Miners' Mines)
CONSULTING MINING ENGINEER, &c.,
GREENFIELD HOUSE, WREXHAM.

Visits the principal Mines in the MINERS, LLANARMON, MOLD, and FES-TINIOG Districts, and can give, when required, the most reliable information, that may save thousands of pounds.

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FOR USE IN ALL BLASTING OPERATIONS, AND ARE SPECIALLY PREPARED FOR ANY CLIMATE.

Note the TRADE MARK: Two separate threads through centre of Fuse.

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PRICE LISTS, DESCRIPTIVE CATALOGUES, AND SAMPLES TO BE HAD ON APPLICATION.

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LANCASHIRE OFFICE ADELPHI BANK CHAMBERS, SOUTH JOHN STREET, LIVERPOOL.
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FOR CONVEYING FIRE TO THE CHARGE IN BLASTING ROCKS, &c.

OBTAINED THE PRIZE MEDALS at the "ROYAL EXHIBITION" of 1851; at the "INTERNATIONAL EXHIBITION" of 1862 and 1874, in London; at the "IMPERIAL EXHIBITION," held in Paris in 1855; at the "INTERNATIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXHIBITION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Altona, in 1869; TWO MEDALS at the "UNIVERSAL EXHIBITION," Vienna, in 1873; and at the "EXPOSICION NACIONAL ARGENTINA," Cordova, South America, 1872.

BICKFORD, SMITH, AND CO., of TUCKINGMILL, CORNWALL; ADELPHI BANK CHAMBERS, SOUTH JOHN STREET, LIVERPOOL; and 85, GRACECHURCH STREET, LONDON, E.C. MANUFACTURERS AND ORIGINAL PATENTEES of SAFETY FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—
EVERY COIL of FUSE MANUFACTURED by them has TWO SEPARATE THREADS PASSING THROUGH the COLUMN of GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS as THEIR TRADE MARK.

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BLASTING FUSE FOR MINING AND ENGINEERING PURPOSES

Suitable for Wet or Dry Ground, and effective in Tropical or Polar Climates.

W. BENNETTS, having had many years' experience as Chief Engineer with Messrs. Bickford, Smith, and Co., is now enabled to offer Fuse of every variety of his own manufacture, of best quality, and at moderate prices.
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ALEX. DEL MAR,
MINING ENGINEER,

Formerly Director of the Bureau of Statistics of the United States, Superintendent of the United States Special Commissioners of Mines, Mining Commissioner for the United States Monetary Commission, author of a "History of the Precious Metals," &c.,
216, SANSONE STREET, SAN FRANCISCO, CALIFORNIA.
Mining Properties surveyed and reported upon. Assays and quantitative analyses made of ores, &c.

THE SELF-ACTING PORTABLE ORE-DRESSING MACHINE COMPANY,
ABERYSTWYTH.

THESE MACHINES are constructed to meet the requirements of Mountainous Districts, where the transmission of heavy machinery is impracticable, and Mines worked on a small scale. The Machines are complete in themselves, and require no masonry or any other foundation, and can be driven by either steam or water power.
Estimates and full particulars on application, as above.

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AN ELIGIBLE OPPORTUNITY is now offered for the SETTLEMENT of an ACTIVE YOUNG GENTLEMAN IN CANADA. He will be enabled to obtain his profession as a Solicitor in five, or if he be a Graduate in three years. Cost of living about £150. In the meantime he will have active work, and obtain a knowledge of the Dominion, which is destined to become one of the most prosperous of the Colonies. Premium, £100 sterling.
HERBERT C. JONES,
32, Wellington-street, Toronto.
Canada Land and Loan Agency.

W. TREGAY, Mining Engineer, REDRUTH,
Having had many years' practical experience in Metallic Mines, is prepared to INSPECT, REPORT, and ADVISE on every description of MINERAL PROPERTY

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**STEAM ENGINES (Portable or Fixed)
THRESHING MACHINES.
GRINDING MILLS
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cost. The awards are not to be less than 2%, and not more than 10%; but the firm may grant a larger sum if satisfied that the invention is of sufficient importance to warrant them to do so.

A GOOD EXAMPLE.—Messrs. William Denny and Brothers, of the Leven Shipbuilding-yard, Dumbarton, have issued an intimation to their workmen in which they state that having noticed during the past two years many improvements in the methods of work and appliances introduced by their workmen into their yard, they readily recognise the

recognise the advantage accruing to their business from these efforts of skill, and are desirous that they should not pass unrewarded. Messrs. Denny have, therefore, decided that the authors of improvements introduced after this date shall have a claim upon the firm for reward; and to enable those claims to be readily and easily adjusted, they have appointed a Committee of Awards. The rewards are to be given to anyone who has either invented or introduced a new machine or hand-tool into the yard; to anyone who applies existing machinery or hand-tools to a new class of work; to anyone who has discovered or introduced any new method of carrying on or arranging work; or generally to anyone who has made any change by which the work of the yard is rendered either superior in quality or more economical in

and Manchester Bolling Warehouse $\frac{1}{4}$ lower.

RAILWAYS.—There has been almost a general rise in during the week, although best prices are not maintained, the relapse being brought about by various causes. The Scotch lines have drooped on unsatisfactory traffic receipts. Brighton, A, mark a decided advance on being heavily bought. Heavy lines show great changes for the better, London and North-Western, Lancashire and Yorkshire, and North-Eastern. The takings on the Great Eastern are good, and a further improvement may be anticipated. The prospect of dearer money and a further restriction of the Government, which commences to-morrow (Friday), has, however, caused all to recede from their best. Grand Trunk shares have fallen almost uninterruptedly, affected, no doubt, by realisations. Great Western of Canada are easier from the same cause. Americans, after the firmness of a week ago, show declines, consequent on the New York rates of exchange showing a likelihood of money going there and causing our Bank rate to be raised. Erie and Pennsylvanias are the most heavily pressed.

NEWCASTLE-ON-TYNE STOCK EXCHANGE.—Messrs. SPENCE and IRWIN, stock and share brokers, Grey-street (Aug 26), write:—The feature of the week has been the good demand for iron companies shares. Bede Metal and Chemical Company have just declared a dividend of $7\frac{1}{2}$ per cent., and in consequence the price has improved from $3\frac{1}{2}$ ds. to 1s. Conselt Iron Company shares, after touching (once) 24 prem., have receded to 20½ prem. Price to-day 20½ to 21 prem Conselt Spanish Ore; 31s. is bid for these shares, whilst sellers ask 32s. Business might be done at 31s. 6d. Darlington Iron Company shares are offered at 16½ ds., whilst 11 ds. is bid. Palmer's Shipbuilding and Iron Company A shares are offered at 16½ ds., whilst 11 ds. is bid, at which price they still offered 8½ ds. is bid for the B shares without tempting sellers. Teas Dale Iron and Engine Works: 2½ is bid for these shares, whilst sellers hold out for 2½ 10s. The

PERRAN SILVER-LEAD CONSOLS (Limited).—This company has been formed to acquire and work the Penhale United and Phoenix properties, situated in the parish of Perranzabuloe, in the county of Cornwall. These extensive sets contain some of the richest silver-lead lodes in the county. From the Penhale portion at least 50 tons it is estimated can be sent at once to market monthly, leaving a net profit of 7½ per ton, and as deeper levels are opened up the sales will be increased. The shaft in the Phoenix portion is sunk to 68 fathoms and the lode is here worth 25 cwt. of rich silver-lead ore to the ton.

fathom. The directors confidently believe the investment will be a lucrative one. The capital is 15,000*l.* in 1*l.* shares.

The following calculations show the yield per cent. on money invested at present prices in the shares named, based upon the last average yearly dividends being maintained:—Broxburn Oil would yield 10½ per cent.; Oakbank Oil, 9½; Scottish Australian Mining, 8½; Scottish Wagon, 5½; Steel Company of Scotland, 4; Tharsis Sulphur and Copper, 6; ditto (new), 6½; Uphall Oil, 4½; and Young's Paraffin, 5½.

EDINBURGH.—Messrs. THOMAS MILLER and SONS, stock and share-brokers, Princes-street (Aug. 26) write:—Since Thursday last week Caledonian Railway Ordinary has risen 1½, North British 1, Glasgow and South-Western 2½, and Great North of Scotland has declined about 1. Preference and debenture stocks continue in strong demand. Banks have been firm. Clydesdale has risen from 202 to 203, Commercial from 230 to 233. British Linen has, however, receded from 274½ to 274. Insurance shares have, on the whole, maintained their prices. North British and Mercantile shares have advanced from 52½ to 53½, and Scottish Accident from 28s. 6d. to 28s. 6d. Standard Life have gone down from 75½ to 74. Edinburgh Gas shares have risen from 45½ to 46½. The shares of colonial investment companies have been in some demand, but in a number of cases the shares of even recently formed companies seem to be well held, few sellers appearing. American Mortgage of Scotland shares have advanced from 20s. 6d. to 21s. Mortgage of South Australia from 13s. 9d. to 14s. 6d. Scottish American Investment shares are 6d. lower, at 72s. 6d. In mines Benhar has declined 6d., Canadian Copper 1s., Huntington 1s., Marbella 4s., Monkland 1s. 6d., Tharsis 5s. Clyde Coal has improved 1s., Omoia 1s. 3d.

IRISH MINING AND MISCELLANEOUS COMPANIES' SHARE MARKET

CORK.—Messrs. J. H. CARROLL and SONS, stock and share brokers, South Mall (Aug. 25), write:—Markets have been dull and unsettled the past week. Great Southern, after being 120½, have fallen to 119½, 120, and Midlands down to 97½. Bandons keep steady at 93½, and Passages at 11 to 11½. Macraons are also asked for at 5½. National Banks are 65½ to 65½, and Munsters 6½ to 7. Nothing doing in Provincial. Cork Steam Packets are strong at 13½, and Lyons shares at 4½ to 4½. Daily shares have changed hands at 3½, and Gouldings at 8½. Levys remain 5½ to 6, and Harbour Board Debentures 101½ to 102 per cent.

WATSON BROTHERS' MINING CIRCULAR.

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In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.R.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," (first series, 1832), "Cornish Notes" (second series, 1833), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and share-dealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are enabled to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (assupplied to most of the London and country papers), giving the closing prices of Mining Shares up to four o'clock.

They also buy and sell shares for immediate cash, for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charge for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other securities dealt in on the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

Our readers will not have forgotten the discussion that took place in the *Mining Journal* a year or two ago, in consequence of our remarks upon the Pant-y-Mwyn Mine, and the almost abusive way in which we were treated by the agent when we denied that he was either returning, or in a position to return, 60 tons of lead per month. The value of the property as a speculation we did not deny; but without adequate machinery, and improperly worked, it had been introduced to London as a dividend-paying property at the rate of 150,000*l.* for the mine. We believe it was not long after our remarks were written that the directors themselves found out how they had been deceived; they changed the management, erected machinery, and have since been doing their best to make the mine a good and permanent property; and, having written and said so much upon it formerly, we are only too glad now to record this fact, and to refer to the accounts—and a few things they suggest—which are to be presented to the meeting at Liverpool on Aug. 31. During the time the permanent works have been carried on and the erection of the machinery the mine sold in the last twelve months ending June 30 195 tons of lead ore, for 2170*l.* Out of the 30,000 shares into which the mine is divided 11,548 only have been issued; but a considerable sum has been borrowed on debenture bonds, &c., all of which we would suggest, together with the loans and debts, should be paid off by the issue of unallotted shares, and with a clear balance-sheet and a working capital in hand Pant-y-Mwyn may take a good position.

The Old Holmbush Mine has been sold to the New Holmbush Mining Company (Limited) for 5000*l.* by the liquidators of the Credit Company, and is at work, returning about 100 tons a week of arsenical mundic. The company is in 10,000 shares of 4*l.* each, and the great object is to get to the bottom of the mine and into a course of copper. The price of arsenic is bringing several mines into prominence, among them Okel Tor, which is making a profit of about 300*l.* per month.

The tin question has again cropped up at the Prince of Wales. Steam stamps were erected a few years ago at a cost of nearly 2000*l.*, and they are still on the mine. When first put up a few hundred pounds worth of tin was sold, and then stopped. Capt. Andrews has now made experiments and discoveries which he thinks justify his expectations of a good tin mine, and upon this, we presume, the demand for shares has arisen. During the erection of the machinery for the copper, Capt. Andrew writes us that he has been paying some attention to the tin, "and a few days ago let the levings at the floors to a man at 15s. in 1*l.*, the taker to pay all costs, and since this man has been working my eyes are beginning to open on the tin question, as I can find tin in paying quantities anywhere on and about the floors. The stamps pass has been left full of stuff as it was drawn up from underground, and to-day we had a fair sample of the stuff (several tons) assayed, and the produce was fully 56 lbs. of tin to the ton of stuff, pretty near as good as the average of Dolcoath."

Although at first very much averse to making D'Eresby Mountain into such a large number of shares as 25,000, we gave way to the general wish and pressure for them, and agreed to the resolutions which were to have been proposed at the special meeting last Tuesday; we are not sorry, however, believing, as we do very strongly, that in a short time we shall have a good paying mine, that the resolutions could not be carried out without some risk, and were consequently abandoned. The company is registered in 1024 shares, 512 20*l.* paid and 512 10*l.*, the latter ranking to all intents and purposes with the 20*l.* paid. In fact, for all purposes of dealing and for dividends the mine is in 1024 shares of equal value. But to make 20,480 shares of 1*l.* each and give them 20 for 1 it is evident would go beyond the registered capital of 15,000*l.*, and render those who took the 5000 and odd shares always liable to be called upon. But money being required before the returns can be brought into play it was

greatly preferred, and therefore proposed at the meeting to issue 512 bonus shares of 5*l.* each to existing shareholders only. These will rank for dividends, &c., with the existing shares, and the mine will be in 1536.

These shares will be of equal value with the present 20*l.* shares, and will, therefore, be a considerable bonus to present holders, and a good premium has already been offered for them.

WEST CREBOR.—Applications have been made for nearly 20,000 shares, and as there are only 7000 to allot many people must be disappointed altogether, and others obtain considerably less than they applied for.

EXPLORERS' AND ASSAYERS' COMPANION.*

Resuming at the commencement of the second section, there is in the first place a chapter on Prospection, in which some rather extraordinary views are propounded, a few introductory lines demonstrating the progress of science being followed by the statement that it is most deplorable that these astounding strides of science should also mislead mankind into gross swindles and heinous inhumanities, as the greatest of all legal wrongs the "diamond drill," when used by rich managing trustees for tapping the quality of mineral veins for first and exclusive information against the poor and helpless but more numerous stockholders. . . . it is worse than highway robbery, having no excusing feature, and should be immediately suppressed by an especial law. If it were not that Americans, and even naturalised American citizens, are so fond of irony and joking it will be necessary to combat this view, but under existing circumstances it will suffice to say—it is a joke. But he says seriously and truly that in modern mining the business of exploration becomes the most important of all the phases of a miner's practice, for preliminary judgment governs the after success or misfortune by the wise or unwise selection from mineral veins. To be a good prospector is in itself a business that requires many qualifications as well as much study and practice. That so far as California is concerned the country is not unpleasant to prospect in may be judged of from the reference Mr. Phillips gives to its fertility.—Despite the immense yield of gold in California, it is now shown that her tillable soil produces more actual wealth than her richest mines. Her grain and her fruit exceed in value the best of her placers. Her grape crop will this year be so very large that preparations are being made to convert 1000 tons of grapes into raisins. Most persons think of California only as a gold-bearing State, and it is pleasant to know that her agricultural resources are beyond those of her mines.

The two following chapters treat of How to Explore and Where to Explore respectively, in the latter of which he mentions that nothing in the portions of Europe, Western Asia, or Northern Africa, more particularly celebrated for beauty and grandeur, can be compared to many parts of the vast interior of some regions of the Pacific States, more particularly when displayed to view from the summit of a mountain somewhat higher than those around. The atmosphere is so clear that 200 miles may be looked through more distinctly than 20 miles on the sea coasts of Northern and Western Europe, so that some scores of mountains may be seen at a glance rising in grand sublimity, realising all the shades of blue, violet, and purple of the painter, and affording lessons in geology never to be forgotten. As to Colorado, he passed down the Cheyenne on the east of the Rocky Mountains as far as Del Norte on the Rio Grande, followed up that river to the summit of the southern portion of the Rocky Mountains, and thence down to and over the rolling high table lands of the southwestern corner of Colorado, lying at and around La Plata Mountain. This region, he says, has an equally good and pleasant climate, but having more summer and autumn rains than those described, the rolling country is distinctly studded with a species of sugar pine in an almost continuous park of nutritious bunch and ring grasses. It is a magnificent region for surpassing beauty of mountains and plains, and in addition to the frequent showers is extremely well watered by many small gulch streams and the five clear-water rivers, Dolores, Mancos, La Plata, Animas, and Florida, which, after diverging for considerable distances like a wide-spread hand, empty into the Colorado at distant points. It was once thickly inhabited by the ancient Aztecs, and is, indeed, a paradise for modern prospectors and stock men. In reference to the chances of mining, he says that vast areas of coal await men's requirements, and although there has been but little exploration for veins many have been discovered, and some are of most promising character.

A great advantage of the district is that animal food may be kept for an almost indefinite time without being salted even during hot weather because of the extreme dryness and rarity of the atmosphere. It is, moreover, free from malignant diseases or dangerous wild beasts, and the Indians generally prefer giving civilised man a wide berth. In mining it will have the advantages of high reserves of mineral in the mountain veins; and for this reason, the lack of rain, and that of the general fact of a peculiar disposition of the water to sink deeper in this elevated and disjointed country, large pumping-engines will be seldom required, whilst wood is generally found in sufficient quantities for hoisting, milling, and smelting the ores. The disadvantages are remote positions from the sea, which in one belt is already modified by the completion of the Atlantic and Pacific Railway; other railways will in time follow to benefit the different transverse belts through which they must pass. This distance, with the present high rate of wages, &c., will prevent the successful mining of these base metals by companies. Gold and silver will, of course, if in quantity over-rule these difficulties, and can be mined anywhere at a profit. The opening of the mines at Bodie, and the coal, &c., already laid open, afford evidence of this. In concluding this chapter Mr. Phillips very properly refers to the claims of many noble men who have by their heroic and indomitable actions brought millions to mankind without much of any benefit to themselves. In fact, a sort of adverse fate has generally followed them—as Salcedo of South America was cruelly executed, Comstock died miserably poor in Montana, where not even a headstone marks his grave, and Bodie had his life's blood frozen in coming from the district bearing his name, whilst Marshall and others yet living are not in the least degree rewarded. Governments may very justly reward soldiers for brave services on battle fields, but by neglecting also to favour and recompense the works of such worthy men as these they jointly injure both countries and men. The peculiar kinds of the primitive and secondary rocks which concern miners as being most congenial for rich veins, and what formations should be avoided, are considered in the next chapter, and there is then one on the locators' preliminary exposition of the general features of a vein so as to ascertain its approximate value, which brings the second section to a close.

Assaying and discrimination form the subject of the third section, and is divided into 18 chapters, embracing the systematic preparation of the sample to obtain average for assay, description and general advantage of the portable assaying machine invented by the author, new methods for the examination and assay of ores, &c., the modes of discriminating by ordinary blow-pipe, testing the useful and profitable minerals, new methods by blow-pipe for the direct examination of minerals, an alphabetically arranged record of the effects produced by water, fire, &c., on minerals, assaying and refining of gold and silver, assaying lead, antimony, copper, tin, mercury, iron, manganese, and zinc, assaying coal and other fuels, and working tests for gold and silver, a glossary of words and phrases used in exploring, assaying, mining, and metallurgy; whilst the second volume, which will shortly be issued, will treat of mining and engineering and metallurgy, so that the entire work, when completed, will be one of the most practically useful yet published, and will be generally appreciated by explorers, miners, and metallurgists. Although the general form of the first edition has been retained—indeed, it could scarcely have been improved—such numerous additions and revisions, with a view to bring it to date, have been made that the work may almost be regarded as a new one which will be alike valuable to those who

* "The Explorers' and Assayers' Companion: Rocks, Veins, Testing, and Assaying." Vol. I. (complete in itself) of the third edition of the Explorers', Miners', and Metallurgists' Companion—a practical exposition of the various departments of geology, exploration, mining-engineering, assaying, and metallurgy. By J. S. PHILLIPS, M.E. San Francisco and New York: The Author. London: Trübner and Co., Ludgate Hill.

have and who have not its predecessor, and no public institution wherein mining subjects are taught should be without a copy.

UNITED STATES INDEXED MAPS.—Reference has several times been made in the *Mining Journal* to the admirably executed mining and other maps compiled by Messrs. Rand, McNally, and Co., of Chicago, and issued in this country by Messrs. Trübner and Co., of Ludgate-hill, and they have now received their large Railroad and Country Map of the United States and Canada—an enormous and high-class work, 8 ft. 4 in. wide and nearly 5 ft. high—which will be generally appreciated by those in this country connected with transatlantic business. The scale is 32 miles to the inch, and the map has occupied two years in compilation and engraving, and it has cost over 4000*l.* to produce it. The map, which is the first of the United States made upon a geometrical projection since the war, is engraved by a patent process in readily distinguishable colours, and with the names, &c., of the utmost possible legibility, the large scale permitting the names of the more prominent towns to be given in type as large and legible as that in the present notice, whilst the price—3*l.* 13s. 6d., handsomely mounted—is really a marvel of cheapness. Less expensive forms, consisting of certain sections of this map, are also published to meet the requirements of those who do not need the complete work, and for the traveller the series of indexed pocket maps will prove invaluable. As these are published for each State and Territory the special want of each user can be readily supplied. The New Official Railroad Map of the United States; Nevada and California in one book, and Colorado are amongst the most recently issued, and from the readiness with which any particular town containing more than 25 inhabitants can be found by the use of the indexes and guide lines, makes them the most useful and convenient that can be carried.

FOREIGN MINING AND METALLURGY.

The intelligence received with reference to the Austrian iron trade is favourable. Makers of plates have held a meeting, and have resolved to maintain their prices without any reduction. It must not be forgotten that in Austria, as well as in Belgium, the maintenance of prices really represents an advance, as hitherto rates had been to some extent nominal. The French iron trade has experienced no important change in its general tone. Quotations have been fully maintained; indeed, in some departments a slightly upward tendency has appeared. Notwithstanding this, the demand has continued active. The company for working the Dutch State Railways has let a contract for 4000 tons of Bessemer steel rails, and 280 tons of steel fish-plates. Tenders were submitted by nine works, and the lowest proposal was that of the Osabruck Steelworks, which offered to supply the rails required at 7*l.* 13s. 1d. per ton. The next lowest tender was that of Messrs. Bolckow, Vaughan, and Co. (Limited), Middlesbrough, who required 7*l.* 14s. 7d. per ton. The lowest tender for the fish-plates was that of M. Adhemar Le Roy, of Molenbeek St. Jean, who offered to supply them at 5*l.* 2s. 3d. per ton. An Amsterdam firm presented the next lowest tender. The German iron trade has been firm, and in some departments prices have been leading upwards.

The consumption of coal in the French department of the Nord amounted in 1879 to 4,584,202 tons. This supply was drawn from the following sources:—The department of the Nord, 2,108,121 tons; the department of the Pas-de-Calais, 1,235,772 tons; Mons and the Centre basins, 745,122 tons; the Charleroi basin, 477,069 tons; Roubaix, 22,447 tons; and German basins, 671 tons.

The Upper Italy Railway Company is about to let contracts for ten locomotives—six with six wheels, coupled with tenders; and four with eight wheels, coupled with tenders.

The aspect of the French coal trade has experienced no material change. Supplies for the winter continue to be laid in, but quotations have shown scarcely any variation. The question of the insufficient supply of rolling stock on the Northern of France Railway has again forced itself upon public consideration, and it is feared that the difficulty will become more serious and complicated when the winter sets in unless the council of administration increases without delay its carrying resources. It appears that the production of coal in the Valenciennes basin experienced a slight increase last year. It amounted in 1878 to 3,240,604 tons, but it rose last year to 3,275,531 tons, showing an increase of 33,927 tons last year. The production has remained, however, almost stationary since 1872. The German coal markets have presented much the same tone during the past few days. No decided advance has yet been established in quotations, but still transactions have been carried through with much ease. The harvest promises well in Germany, upon the whole, and the generally good news received from the United States has also some effect. In Austria somewhat higher rates for coal are now accepted by consumers. The intelligence received with regard to the coal trade of Bohemia is also favourable, a good sugar-making season being anticipated.

According to the accounts in the Berlin papers, the conference of German coalowners and railway officials, for the purpose of devising measures to enable German coal to compete more effectively with English coal in the Berlin market, does not appear to have had any tangible results. The discussion appears to have turned to a large extent upon the question as to the economic claims of the Silesian, Saxon, and Westphalian coal fields upon the Berlin market, presumably in consideration of their respective geographical positions. It is stated that it was found impossible to reconcile these diverging interests. We may venture to assume, therefore, that so long as the coalowners of the three districts named are unable to agree as to which section is entitled to special privileges in order to drive out only English coal but also (apparently) the coal from rival German localities from the contested district, English coal will be allowed to compete successfully. The incident illustrates the fact that the advocates of State-help, in order to be logical, would eventually be reduced to the necessity of demanding protection not only for one country against another, but for one province against another, and for one town against another, and finally for each producer against every other.

NEW VACUUM PUMPING APPARATUS.

An arrangement of pumps which it is claimed will raise large quantities of water at less expense than with present pumping apparatus, has been invented by Messrs. FRINGS and MULLER, of Berlin. A continual vacuum is produced within the apparatus above the water to be raised, so that nearly all the atmospheric pressure will enter with great force upward into the pump tube. The apparatus consists of a closed vacuum cylinder which will be mounted upon suitable supports, and a number of cylindrical chambers, two or more, are employed which may be grouped around the vacuum cylinder, said chambers being in connection with interior of the vacuum cylinder by valve ports provided with clappets. The chambers are connected at the upper part thereof by a channel upon which a reciprocating slide valve works. The channel is connected by a suction pipe with the air pump employed for the purpose of drawing off the air from said chambers; when this is permitted, by the position of the slide valve when the apparatus is fitted, air is removed from the cylinder whereby a constant vacuum is maintained therein.

The bottom of the vacuum cylinder has the water passage or tube carried up into the same and is of one piece, and in direct connection with the pump tube, and within this passage is provided a clock valve and seating as usual in pump tubes for preventing the return of the pumped water. The slide is operated preferably by a small turbine which will receive its motion from the outflowing water, but may be operated by any motor actuated by the flow of water. This turbine rotates through two pairs of bevel wheels and a shaft, on the end of which is carried a crank disc which moves the slide valve. The vacuum cylinder is connected at its upper end by a pipe provided with a cock with the suction pipe of the air-pump, in order to remove any air that may be brought into the cylinder with the pumped water.

Through the motion of the slide valve there is produced alternately a vacuum in the chambers, so that the pumped water from the vacuum cylinder can enter one of the said chambers by the opening of its respective clappets until it attains the same level therein as that in

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, AUG. 27, 1880.

IRON.	£ s. d.	£ s. d.	TIN.	£ s. d.	£ s. d.
Pig, 600, f.o.b., Clyde.	2 15 3	—	English, ingot, f.o.b.	92 0 0	—
" Scotch, all No. 1	2 15 6	—	" bars	93 0 0	—
Bars, Welsh, f.o.b., Wales	5 15 0	0 0	" refined	94 0 0	—
" in London	5 0 0	—	Australian	89 0 0	85 0
" Stafford	7 5 0	7 10 0	Banca	92 0 0	nom.
" in Tyne or Tees	5 15 0	6 0 0	Straits	89 0 0	85 0
" Swedish, London	10 0 0	10 10 0			
Rails, Welsh, at works	6 0 0	—			
Sheets, ship, in London	8 0 0	8 10 0			
Plates, ship, in London	7 10 0	8 0 0			
Hoops, Stafford	7 15 0	8 0 0			
Nail rods, Stafford	7 0 0	8 0 0			
STEEL.					
English, spring	13 0 0	13 0 0			
" cast	30 0 0	30 0 0			
Swedish, keg	15 0 0	—			
" fag. ham.	15 10 0	—			
LEAD.					
English, pig, common	16 5 0	—			
" " L.B.	16 15 0	—			
" " W.B.	17 0 0	—			
" sheet and bar	16 15 0	—			
" pipe	17 10 0	—			
" red	19 0 0	—			
" white	19 0 0	—			
" patent shot	22 0 0	—			
Spanish	15 17 6	0 0			
NICKEL.					
Metal, per cwt.	15 0 0	16 0 0			
Ore, 10 per cent. per ton	20 0 0	25 0 0			
QUICKSILVER.					
Flasks, 75 lbs., war. (nom)	7 0 0	—			
SPANISH.					
English, Swansea	17 15 0	18 0 0			
Sheet zinc	22 10 0	23 0 0			
At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X 6s. per box more than 10 quoted above, and add 5s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.					

REMARKS.—Since our last issue quietude has been the characteristic feature of the metal market, and this is not surprising considering the prevalence of fine and seasonable weather, which tends to confine business to small dimensions by attracting commercial men from the City; but, at the same time, a good tone is infused into the markets by the improved appearance of the crops, which necessarily implants a feeling of greater confidence, and makes the prospects of the trade all the more encouraging and satisfactory. The temporary lull in the markets, therefore, is not a matter which need cause any anxiety with regard to the future, but should rather be taken as a favourable feature, as it damps the spirit of rash and undue speculation, which in the long run would not only prove disastrous to the operators themselves, but would also be prejudicial to the real interests of the trade. The amount of legitimate business transacted in some metals throughout the whole of the closing quarter of the year has been fully up to the average of the past few years; and it may, therefore, be argued that the inducement of low price which has prevailed has made many buyers anticipate their future wants, and that orders that would have been coming hereafter have already been placed.

COPPER.—There has been a particularly quiet market this week, and prices have undergone but slight variations, and are now rather easier for Chili bars than at the end of last week, the official quotation being about 61½. The large stock and the continuance of heavy supplies tend to weaken the market, and many buyers are consequently deterred from increasing their interests in this metal. Other operators, however, who appear to have been purchasing in large quantities for a long time past seem loth to permit the slightest reduction to take place in prices without freely availing themselves of it, and this necessarily implants a healthier tone into the market, and sellers have greater ease in maintaining their quotations. With regard to manufactured prices are steady, but orders are few, and it seems doubtful whether the demand will increase sufficiently to enable manufacturers to maintain present prices. Large supplies of both copper and yellow metal sheets have been sent to India, and indentors are now indisposed to increase or even continue their purchases unless it be at prices below current rates; and as sellers are reluctant to make concessions, there appears but little prospect of the trade with that country being increased for some little time hence. A plentiful harvest is reported in India, and this may be the means of reviving the trade earlier than would otherwise have been the case, but as the natives have yet to receive large supplies, it will doubtless take some time before orders again become plentiful.

IRON.—This market continues to assume a steady appearance, but the amount of business doing at the present time is somewhat limited; nevertheless, prices are fairly maintained, chiefly on account of the repeated favourable reports of the state of the American trade, and the fair prospects of trade revival generally. The improved demand for pigs which was manifested last week has not continued, and a slight reaction in prices has occurred, but there is not much change in quotations; and owing to the strong desire which many operators show to effect purchases, it does not seem altogether improbable but that prices may be hereafter again advanced. The weaker tendency of prices should be attributed not to any probability of the prospects of the autumn trade proving less favourable than is generally anticipated, but to the rise which has already been effected at a time when stocks are exceedingly heavy and before the shipping demand has commenced, and under which circumstances it would have been a very exceptional occurrence if prices had made one undeviating upward progress, and would not likely to have led to the permanency of the increased rates. A trifling reaction such as has occurred this week is, therefore, satisfactory; and as sellers have made but slight concessions, it is plain there is not much anxiety to sell at reduced rates, and when prices again show symptoms of advancing it is not at all unlikely but that operators may once more purchase freely and prices be advanced with greater rapidity than buyers at present expect.

The spreading of the agitation in the mining districts in Scotland is said to be causing irreparable mischief to the trade, as consumers are being supplied by foreign buyers at prices which our makers would barely be able to compete with, even without any advance in wages. Although there has been already a great curtailment in the production, there being now only 42 furnaces in blast yet it appears necessary that some further reduction be made, for statistics show stocks to be increasing at the rate of about 3000 to 4000 tons per week, the total stock on the 21st inst. in Messrs. Connel and Co.'s Glasgow stores being no

less than 460,933 tons, against 457,346 tons on the 4th inst., and 454,604 tons on the 7th inst. The foreign and coastwise shipments last week were rather in excess of those of the previous week, being 15,877 tons, against 14,252 tons and 12,260 tons in the corresponding weeks of 1879; and the total shipments from Christmas to date this year have been 468,383 tons, against 313,480 tons last year. The imports of Middlesbrough pig-iron into Grangemouth last week were 5650 tons, against 4990 tons for the same week in 1879. The warrant market, on the whole, has been rather quiet this week, the opening price on Monday being 55s. 6d., when the market gradually gave way to 54s. 9d., rallying again to 55s., and opened on Tuesday at 1½d. above this figure, but quickly receded to 54s. 4½d., at which figure business was transacted. On Wednesday, owing to a pressure of sales, transactions were reported at the opening at 55s. 3d., and down to 52s. 6d. was touched. Yesterday the market was steady at about 53s. 1½d., and to-day at 53s. 3d.

The Middlesbrough market is reported quiet, and prices have fluctuated in accordance with quotations on the Glasgow market. Speculation just now is rather quiet, and stocks have increased during the week about 300 tons, thereby bringing the stock in Connel's yards to 92,520 tons. Business has been transacted in No. 3 at 42s. 6d., but the general quotation is about 3d. per ton more. Makers ask 42s. to 44s. 6d. for No. 3, and 1s. less for No. 4. The shipments of pigs last week were over 4000 tons below those of the previous week, being only about 15,500 tons. A slight improvement, however, has occurred in the deliveries of manufactured iron and steel, the quantity being over 500 tons. Owing to the difference between the price of Scotch pigs and those produced in the Cleveland district there is a good demand from Scotland for Middlesbrough iron, and makers are considering the advisability of blowing in a few more furnaces. Prices of manufactured show no material alteration, ship-plates being quoted at 61s. 15s. to 72s. bars 57s. 6d. to 62s. and angles at 61s. to 62s. 6d. per ton. The Wolverhampton market is said to be rather inanimate, yet a steady business is reported both in crude and manufactured iron at firm rates. Welsh hematites are quoted at 80s., and Lancashire and Cumberland sorts at 10s. per ton more. Staffordshire all mine pigs realise 70s. to 75s., and cinder pigs sell at 40s. The finished iron trade is dull, and sheets are quoted at 82s. per ton for singles. A firm tone has pervaded the Birmingham market, and the recent advance in prices has been fully maintained, and unless pushed up with too great rapidity, a still further improvement in prices is expected to be established.

Transactions in common bars are reported at 7½, and a good colonial enquiry exists for galvanised and roofing sheets. There is a fair request for pigs amongst the local iron foundries, and common forge iron realises from 21s. to 22s. 7s. 6d., and hot blast mine pigs 31s. 12s. 6d. Business at Sheffield is reported brisk, but pig-iron and puddled bars are rather cheaper. No. 1 Cleveland can be bought in this district at about 21s. 7s. 6d., No. 2 at 21s. 5s., No. 3 at 21s. 2s., and No. 4 at 21s. 2s. 6d. Hematites maintain their previous figures, and exporters are selling at 31s. 10s. to 40s. The improvement in the Welsh trade is fully sustained, and some makers are thought to hold a sufficient number of orders to keep their mills fairly engaged for the remainder of the year. Fair enquiries are received from America, while good orders come from the colonies and the Continent. A recent cablegram from New York states a very satisfactory business continues to be transacted in Scotch pigs, and prices remain steady. The demand for scrap and old rails is satisfactory, and owing to a slight reduction in prices business is reported to have been stimulated.

TIN.—With the exception of to-day prices have assumed a weakening tendency throughout the whole week, and lower rates have been accepted. Business was done on Monday in foreign at 90½, and on Tuesday and Wednesday 5s. per ton less was accepted, and yesterday down to 88½. Spot was touched, but to-day there has been more inclination to buy, and the market closes at 89½ to 89½ 5s. Judging from the features both in favour and against this market it is difficult to foresee the immediate future course of prices, but the market is still moderately steady, and it is not improbable that the advanced rates may stimulate the production, which may prove adverse to any further advance in prices.

LEAD.—There is no new feature to be reported in the state of this market, sellers remain tolerably firm in their quotations, and a moderate demand exists.

SPELTER.—The slight concessions which sellers have made in their prices does not appear to have stimulated the demand, which continues quiet, and without showing any symptoms of reviving yet awhile.

STEEL.—The rail-mills are reported actively engaged, but the demand for other descriptions keeps limited, and prices unaltered.

TIN-PLATES.—According to advices from America the demand in that country keeps animated, and some of our manufacturers are said to be fairly busy.

QUICKSILVER was very quiet during the early days of the week, but a very active demand for Spanish has since developed itself, and there has been some hesitation on the part of the importers in supplying all requirements.

MESSRS. FRY, JAMES, AND CO.—COPPER has varied but little since our last; Chilean rose in value about 20s. a ton a week ago, but has since gradually receded, while to-day the market is quiet, and no new feature is to be noted. The whole of the market demands for the kinds which are offering. Australian is very generally withheld from the market.—IRON is without change in the market for manufactured, but Scotch pig has fluctuated rather severely, having touched 55s. and 52s. 6d. in the last few days, and is now 53s. 3d. cash g.m.b.—TIN continues to be swayed by contending operators. Fine foreign advanced to 90½ per ton in the course of the week, and receded to 88½ 15s., at about which it now stands.—SPELTER is about 5s. a ton lower since our last report.—LEAD is higher in price by 5s. to 10s. a ton.—TIN-PLATES steady.

MESSRS. PILEY AND ABELL—GOLD: The only arrival since our last has been 31,000½, per Washington, to-day, from Central America. This will probably be taken for the United States, a few limited amounts in the open market having been also purchased within the last few days. Recourse has not yet been had to the Bank of England, but with the New York Exchange at 4-8½, as called, this is not improbable. The shipments from Germany, up to yesterday inclusive, to New York, were 245,000½, and from Havre 104,000½—these since our last circular. Some amounts will be forwarded on Saturday next from Havre. The P. and O. steamer Verona took yesterday 4000½ in bars and 5000 sovereigns to Bombay. The same company's steamer Ancona, due on the 28th inst., brings 200,000 sovereigns, 41,000½ in bar gold, and 15,000½ in gold coin. The Bank of England has received 15,000½ from Africa, and 120,000 sovereigns have been withdrawn for Portugal and South America.—SILVER: The supply of bars is exceptionally limited, and transactions have been few; the price is, however, steady at 52½d. per oz. standard. We have no arrivals to report, and the only shipment has been 17,500½ to Bombay, per P. and O. steamer Verona yesterday from Southampton. 21,000½ in Austrian florins were dispatched from Venice to Bombay on the 20th inst.

THE MINING SHARE MARKET has been rather more active this week, and a fair amount of business transacted in several prominent mines. Those mostly dealt in have been East Pool, Prince of Wales, East Caradon, Wheal Crebor, Derwent, Devon Great Consols, Minera, Marke Valley, Parys Copper, Morfa Du, Wheal Peevor, and a few others.

TIN.—About the time of our writing last week the smelters in Cornwall put up the standards for ore 3½. We had been rather surprised, looking at the state of the tin market in London, that they had not done so before. Tin, however, is not quite so firm as it was, nor are tin shares quite so much in demand. Carn Breas are quoted 82½ to 85; Dolcoath, 55 to 57; Tincroft, 17½ to 18; Cook's Kitchen, 9½ to 10; East Pool, 38 to 40.

Blue Hills, 4 to 4½; Polrose, 1½ to 2; South Condurrow, 10½ to 11; South Crofty, 15 to 15½. South Frances have further declined to 10, 11; West Basset to 15½, 16. At Pedn-an-drea meeting the accounts showed a debit balance of 754½, and a call of 10s. per share was made. West Peevor, 10 to 11. Wheal Agar, 5½ to 6½; at the meeting last week the accounts showed a loss—charging the costs to July 31—of 884½, and a debit balance of 1873½. A call of 5s. per share was made. Wheal Grenville, 10 to 10½; Wheal Kitty (St. Agnes), 5 to 5½; Wheal Basset, 3½ to 4; Wheal Peevor, 31 to 32; Wheal Uny, 2½ to 2½; West Frances, 13 to 14; New Kitty, 1 to 1½; West Kitty, 1½ to 2½; West Phoenix, 2 to 2½; Wheal Jane, 3½ to 4; Wheal Jewell, ½ to 1.

COPPER.—Shares in copper mines have been moderately active, but without much change in quotations. Devon Great Consols, 13 to 13½; Bedford United, ½ to 1½; East Caradon, 1½ to 2½; East Crebor, 15s. to 17s. 6d.; Gawton, 1½ to 1½; Gunnislake (Clitters), 3½ to 4½; Hingston Down, 17s. 6d. to 20s.; Mellanear, 4½ to 5; Marke Valley, 2 to 2½; Morfa Du, 20s. to 22s. 6d.; Parys Corporation, 22s. to 24s.; Prince of Wales, 22s. to 24s.; West Caradon, 2½ to 3. At the meeting a call of 2s. 6d. per share was made. West Seton, 20 to 22; West Tolgus, 50 to 55; Wheal Crebor are weaker at 4 to 4½. The lode in the 120 east is not looking so well. Trevince, ½ to ½; Devon Great United, 1½ to 1½; West Devon, 2½ to 2½; North Penstrulth, 1½ to 1½; West Gunnislake (Clitters), ½ to 1½; Mona, 1½ to 1½; South Penstrulth, ½ to ½. South Devon United, 1½ to 2. It is stated that in the rich copper lode east of the great cross-course a slide is found continuous from the bottom to the upper level, varying from 20½ to 30½ per fathom. The points in operation in the mine in the aggregate are worth 220½ per fathom.

LEAD MINES are still very quiet, and quotations nominal. Van, 19 to 20; Great Laxey, 18 to 19; Roman Gravels, 9½ to 10½; Tankerville, 2½ to 3½; the general meeting will be held at the mine on Tuesday next. South Darren, 2½ to 2½; the lode in the shaft maintains its value. The 110 west is looking better. East Roman, 15s. to 20s.; the sale of lead and blende this week realised 492½. Pandora, ½ to 1½; the sampling is 20 tons of lead and 20 tons of blende. Derwent, 2½ to 2½; East Van, 1½ to 2½; Herodafont, 3½ to 3½; Leadhills, 3 to 3½; D'Eresby Mountain, 20 to 30; Aberllyn, ½ to 1; North D'Eresby, ½ to 1½. Grogwinon, 2½ to 3½; this mine

has sampled 100 tons of lead for sale on Sept. 3. Frongoch, 3 to 4½; the sampling here is 100 tons of lead for sale on the 31st. Carnon, 1 to 2; Crosswood, 1 to 1½; Hartington, 1 to 1½; Mawston, 1 to 1½; Red Rock, 1½ to 2; West Wye Valley, ½ to ¾; New Wye Valley, 1 to 1½; Ystwyth, 1 to 1½; Pennant, 3 to 3½; Gorsedd, 2½ to 3; West Holway, 1½ to 1½; Port Nigel, 2 to 2½; United Van and Glyn, ½ to 1; West Chiverton, ½ to ¾.

FOREIGN MINES.—Almaden, 5s. to 10s.; Birdseye Creek, ½ to 1½; Cape Copper, 40½ to 41½; Canadian Copper, 1½ to 1½; Colorado, 1½ to 2½; Copiapo, 2½ to 2½; Don Pedro, 7s. 6d. to 12s. 6d.; Eberhard, 1½ to 1½; the gold returns for the month is 405½, showing a profit of 66½, after payments on account of erection of new winding-engines. This engine, it is expected, will be erected this month. Flamingo, 10s. to 15s.; Indian Glenrock, 1½ to 1½. Frontino, 3 to 3½; a dividend of 1s. per share has been declared. Anglo-Espana, 2½ to 3½; New Quebrada, 3½ to 3½; Nouveau Monde, 12s. 6d. to 15s. 6d.; Panulcillo, 4 to 4½; Richmond, 14½ to 15½; Ruby, 6½ to 7; John del Rey, 22s to 23s; South Indian, 1½ to 1½.

The Market for Mine Shares on the Stock Exchange has been active throughout the week, and on Wednesday more business was done than for months past. Transactions were officially recorded in no fewer than 20 different mines, and in some cases considerable activity was displayed, whilst the small variation recorded in the prices at which the successive deals were made left no doubt that there was a bona fide demand. The advance in the tin standards, which was referred to as imminent on Friday, was actually announced on that day, although the gratifying intelligence had not reached the dealers, probably the advance was considered so certain that Cornish correspondents thought it unnecessary to send a telegram when it actually took place. Prices have been in almost every instance maintained, and in some few cases an advance has been established.

Indian Gold Mine Shares continue to attract a large amount of attention, and the new launched concerns are reported to have had a favourable reception. Scotch capitalists especially showing readiness to invest. The Devála Provident have already posted their letters of allotment and regret, and the Indian Mammoth have closed their list. They have received a gratifying report from their resident engineer, in which he states that they have tried some more reefs since he wrote, and in all have found good shows of gold, but merely pouncing and crushing the stone (no amalgamation or burning); in others have found visible gold. The more they examine this part of the country the more they are convinced of the richness of the reefs. They are every day discovering most extensive native workings in places they never knew anything about formerly. Devála Moyar have been largely dealt in to-day, and the tendency of prices is decidedly upward; they close 1½ to 1½. Indian Glenrock, 1½ to 1½; South-East Wynad, 1½ to 1½; South Indian, 1½ to 1½.

The Aruba Agency Company, with a capital of 30,000, in shares of 2½ each, are inviting subscriptions at par for the unallotted share capital. It appears that 5361 shares have already been issued, and of the remaining 9639 shares now to be issued 5562 shares, or 11,124 representing the amount of principal and interest to the date of the prospectus, of all the advances upon mortgage made to the company by some of the largest of the present shareholders, will be accepted in fully called up and fully paid ordinary shares at par, in full discharge of the mortgages. The remaining 4077 shares are now offered for subscription. The prospectus states that up to the present time there have been discovered more than 200 gold mines in Aruba, and it is only reasonable to suppose that many more are concealed by the alluvium which has been washed down from the mountains. Before the Aruba Island Gold Mining Company purchased the property, in 1872, it was fully examined and reported upon by Mr. Frank (Messrs. John Taylor and Sons, Queen-street Place), and in his report says: "I believe that in this little island there are more gold quartz veins than are known to exist in any other place of the same size." There would certainly seem to be no lack of gold in Aruba, for the directors state that it is a notorious fact that scarcely a schooner leaves Aruba for Curacao or the mainland, which does not carry away gold which has been surreptitiously washed by the natives and sold to the dealers in the prospectus. The declaration of the directors is that they will make no allotment of shares unless the whole of the 4077 now offered for subscription be applied for, and that if no allotment be made, the amount paid on application will be returned in full. The enterprise is fully referred to in another column.

West Wheel Seton advanced to 22½, 25, and are freely engaged for, owing to the excellent appearance in the bottom of the mine for tin, and it is said that shares are likely soon to see a very high figure. There are, it should be observed, only 1200 shares, 51½ each, per share. Already 446½ per share has been paid in dividends, and the mine are situated near to Dolcoath, Tincroft, East Pool, Carn Breas, and other wonderful rich tin mines.

Gawton, 1½ to 1½, and in demand; it is reported they have got a very rich lode of ore in several places.

Richmond, 14½ to 15½; a shareholder who does not specially desire it to be mentioned that the Richmond is the only English company formed for working an American mine which has returned the shareholders an amount in dividends equal to the capital invested; that it is the only American mine at present paying dividends to English shareholders; that the California Consolidated Virginia Eureka Consolidated, &c., dividends for the first six months of 1880 were more than in the corresponding period of 1879, while the Richmond is progressing, and that Mr. Probert is the only superintendent who has produced the result with which the Richmond shareholders may well be satisfied. It is interesting to mislead to write "the six mines on the Pacific Coast" in making a comparison. There are more than 600 mines in operation on the Pacific Coast, more than 50 of which are paying dividends at all. It should, therefore, have been either "the six best mines," or "six of the mines," &c., which, as compared with the Richmond, would have been correct, though California and Consolidated Virginia not others, put in competition with the Richmond, may now be regarded as "tobogganing," as the Canadians would call it, and unlikely to get up the hill again. The Richmond has already nearly twice returned the capital invested, whilst no other American mine has returned one-fourth of the investment. English shareholders, nor does any one of them appear likely to do so, although they are not under the management of Mr. Probert, whose stupidity for so long a time has been a disgrace to the mining world. The Richmond has made so much of the usual telegram from the mines at Eureka, Nevada, that the week's run was 980,000, or 136 tons of ore. During the week the refinery produced 600 tons of the value of \$45,000. One day was lost through the fire. The manager (Aug. 4) reports that the winze sinking below the level from the cave is down 20 ft., the bottom of which is in ore. He has no doubt they will make a connection in ore from this winze to No. 15 chamber east, 600, north from No. 14 chute, has been drifted 16 ft. in ledge matter, but bunches of galena. The present end is in ledge matter, but not so much galena as there was; still, the indications are good for striking ore.

Ruby and Dunderberg, 6½ to 7½; the progress of the company's mining operations continues to be highly satisfactory. The temporary confusion incident to the fire at Eureka will account for the meagre amount of work reported in the weekly telegram. The smelter selected by the company sails for America to-day.

Frontino and Bolivia, 3 to 3½; the profit for June was 1900½, out of which 808½ 15s. has been expended on capital account. A dividend of 1s. per share, payable on September 13, has been declared. Mr. White reports that all at the mines is going on satisfactorily, and that much of the current cost—3191½.—has been expended on development. He has purchased for a trifle the right to use the River Pucuné water, which, when brought to the mill, will work the extra stamps, and increase the company's profits by 2000½ per month.

Missouri, 10½ to 11; advices received this week, dated August 15, state that the following work has been done since July 15—Clair Shaft: This shaft has been sunk 13 ft. 10 in. deeper, and ends substantially timbered. On passing through the last 5 ft. the lode has become softer; it is now 14 in. wide, well filled with galena. The 245 north has been driven 18 ft. 5 in.; the ground has come in very hard, the level shows in end a white lode 12 in. wide, averaging 5 in. of lead. The indications tend to the level reaching open ground again; 15 ft. more has been done in back stops 245 ft. level. The ground in the lode is averaging 14 in. from the 17th to July 31; the rock is much softer. The same sheet of ore runs parallel with the floor of the drift, occasionally opening into pockets of lead. The indications hold favourable for reaching the bottom of ore when the tunnel is driven further into the body of the lode. The cross-cut leading to cave has been driven through to 64 ft. level from the bottom of the mine. The mineral is pitching east from cave; the ore is not so strong for as it was in the former cave, yet the ground is most favourable for the recovery of large deposits of lead. Shaft No. 2 has been set for sinking 99-50 per foot, and has been sunk 7 ft. since last reported on. The furnace work in the most splendid manner, we could not have anything better.

In Lead Mine shares the largely increased business reported in the end of last week has been well maintained, and considerable confidence is felt that for some time to come at least prices for ores may be fairly anticipated. Van shares are quoted 12½ to 13½.

at the rate of 300,000 for the mine. The lodes in some of the bottom levels are said to be improving.

Roman Gravel is reported to be in demand at 10 to 11, owing to the general appearance of the mines, and the rise in price of lead ores. The last monthly sale of lead ores was 230 tons, realising 2887. East Roman Gravel shares have also advanced, and are in good demand at 17s. 6d. to 20s. The sale of ore this week has realised about 13s. a ton more than last month. The mine, it is understood, is looking exceedingly well.

Tankerville, 3½ to 3¾; and are reported to be in better demand, owing, no doubt, to the important question of amalgamation with the adjoining properties, which will be submitted to the meeting of shareholders on Tuesday next, and the propositions contained in the agent's report and directors' report, issued this week to the shareholders, are considered to be an excellent arrangement, and one which should receive the unanimous and cordial approval of the shareholders. By the united working of these properties there is no doubt, it is said, very large monthly returns of lead and blende will be made, and that the mine will become highly profitable under a careful, and at the same time vigorous, management, such as the neighbouring mine—Roman Gravel—has received, and as the result of which after being abandoned for some 20 years or more was again taken in hand, and the present company have given already in dividends some 100,000, and now that all the necessary machinery is at work and paid for there is no reason why double this figure should not be long before again paid to the Roman Gravel shareholders.

Frongoch, 3 to 3½; the sampling this month is 100 tons of lead, for sale on Tuesday. The mine is stated to be looking well, and improving especially in the deep workings. A lot of blende being dressed up. Grogwinion, 2½ to 3½; the lode in the new shaft is by far the richest yet seen in the mine, and is valued at 4 to 6 tons of lead ore per fathom. The prospects have greatly improved since the shaft was commenced, and the deep workings bid fair to greatly exceed in productivity anything seen in the upper levels. New Wye Valley, 1½ to 1¾; good accounts to hand, and mine reported to be steadily growing in value.

In the Llanarmon district the trials on the numerous lodes are opening out satisfactorily, and with more capital brought to bear upon it in development profits will be believed result. British Silver-Lead, 2½ to 2¾; the ore continues as last reported. Plas-ddu Park, 10 to 12; rich rocks of lead ore in the 30 yard level west, on Maes-y-pwll lode.

[The closing quotations being given in the Share List on the last page of the Journal it is unnecessary to repeat them here.]

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. W. Abbott, of Tottenham-yard, are given in tabular form in the last page of the Journal.

INSURANCE SHARES have, according to this evening's report of Mr. W. L. Webb, of the Stock Exchange and Finch-lane, been dealt in as follows:—Alliance, British and Foreign, 33½ to 34½; ditto, Marine, 25½ to 26½; Commercial Union, 21½ to 22½; Guardian, 70½ to 71½; Law Fire, 15½ to 16½; London, 64½ to 65½; London and Provincial, 4½; Marine, 90½ to 91½; Merchants Marine, 7½; Ocean Marine, 7½ to 7¾; Phoenix, 30½; Royal Exchange, 40 to 41; Rock Life, 8½; Thames and Mersey, 11½; Universal, 10½ to 11½. For closing prices see list on last page of Journal.

GAS SHARES.—The principal business in these shares, according to this evening's report of Mr. W. L. Webb, of the Stock Exchange and Finch-lane, has been in Bombay, new, 4½; Continental Union, 21½; ditto, new, 14½ to 14¾; European, 20½ to 20¾; Gaslight, A, 191 to 192½; H, 7 per cent. max.; 18 to 19½; Imperial Continental, 18½ to 19½; Oriental, 7½; ditto, new, 5½; Monte Video, 16½ to 17½; Rio de Janeiro, 29; South Metropolitan, B, 131. For closing prices see list on last page of Journal.

CHEMICALS, MINERALS, AND METALS.—Messrs. J. Berger Spence and Co. (Aug. 21).—Alum: Loose Lump, 6½ to 7s. 6d.; ground, 7½ to 8s. 6d.; Best white powder, 10s. 10s. Bleaching Powder, 5s. 12s. 6d.—Borax: Refined English, 6s. 6d.—Coppers: Green, 47s. 6d.—Copper: Sulphate, 21s. 10s.—Nitrate of Lead, 25s. 10s.—Soda: 15s.—Potash: 10s. 6d.—Soda: Cream Caustic, 8s. 15s.—Sulphate of Zinc, 12s.—Sulphur: Roll, 9s. 4d.; four, 10s. 15s.—Tin crystals, 6½d. per lb.—White lead, 21s. 5s.—Brimstone: Best thirds, 5s. 15s.—China-Clay, 3s. 9s.—Oxide of Zinc, 25s. 10s.—Talc, 5s.—Umber, 50s.—Copper: Best ingot, 67½; seconds ingot, 66½.—Lead: Best soft English, 16½.—Pig-Iron, No. 4 Forge, 43s.—Spelter, 19s. 10s.—Tin: British common block, 93½.—Naphtha, Mible, 4s. 6d.

With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: The Patent Office Report (Bell and Willing); the Prevention of Colliery Explosions; Mine-Cages and Man-Engines; Shot Firing, and Simultaneous Blasting; Mineral Railways (R. E. Wilson, C.E.); the Lead Trade; Nouveau Monde Mining Company; English-Australian Gold Mining Company; Richmond Mine; Cost-Book Mining, and Limited Liability; Gold in Wales—No. XXIX. (T. A. Readwin); the Cambrian Mining Company; North Trekerby Mine (R. Symons); Wheel Ury and its Management; Phoenix and West Phoenix United Mines; Starting the Machinery at South Cambrian Mine, Cardiganshire (A. Francis); Mining in Cardiganshire; Mining in Llanarmon. New Coal Harbour for Canada. Technical Improvements in Mining. Reports from Cornwall, North Wales, Salop, and Cardigan. Tyne and Wear, North and South Staffordshire, Derbyshire and Yorkshire, Nottinghamshire, and the Forest of Dean. Meetings of Public Companies: Colombian Hydraulic, West Caradon, Wheel Agar, Wheel Jewell, and Peckin-an-Drea Mining Companies. Transfer of Mine Shares. Clausthal Mining School Notes—No. CLXI. Gold Mine Workings in South America, &c.

STEEL RAILS IN HOLLAND.—In connection with a contract recently let for 4000 tons of steel rails required by the company for working the Dutch State Railways, it may be stated that Messrs. Bolckow, Vaughan, and Co. (Limited) tendered at 7½. 14s. 7d. per ton. The accepted tender was that of the Osnabruck Steelworks—7½. 13s. 1d.

RINGOLD.—We publish the report of this company in another column. The shareholders may be congratulated on possessing a property with such advantages as it would seem this one has. No doubt ere long they will obtain good results.

EAST CRAVEN MOOR LEAD COMPANY (Pateley Bridge).—The annual meeting took place on Thursday, on the mine, when a very satisfactory report was presented to the shareholders, and a dividend of 5s. per share was declared.—A full report of the meeting will be given next week.

BWLCH UNITED.—The stopes keep up to their full yield of silver-lead ore, whilst the trial stope in back of the 60 fathom level is, from present indications, likely to open out a considerable quantity of ore.

WEST LISBURN.—Preparations are being made to commence operations, and we understand, in view of the applications made for shares, the list will be shortly closed.

NEW WEST CARADON.—It is understood that this valuable piece of ground has been taken up by the fortunate shareholders in West Caradon. All that has been said in reference to the economical working and excellent prospects of West Caradon applies with equal force here. The shares are already at a premium, and will, it is expected, soon attain the same value as those in West Caradon adjoining.

TREVINCE CONSOLS.—The report from this mine being of such an exceptionally favourable character, the daily improvement taking place in the lode fully justifies the opinion that has long been predicted that this ultimately is going to be one of the great prizes that Gwynnaph parish is so justly renowned for, and the shareholders have every reason to be congratulated for embarking in this adventure, which no doubt at no very remote period will result in the payment of large and substantial dividends.

MINING IN MONTGOMERYSHIRE.—A discovery of rich lead ore has been made in sinking a small shaft from surface at a place called Cwm-Hafod-y-Merch. The ore at present is about 1½ in. solid; but there is little doubt that this is only a branch from one of the great champion lodes of the district, the mine being situated in the immediate vicinity of the Glaslyn, Rhosyddol, Cwm-Byr, and other well-known mines.

WEST CARADON.—The first meeting of shareholders was held last Wednesday, and it will be seen considerable attention is being directed to this property, as there is a strong belief that this concern will before this year is out come prominently into notice. The old company, it will be remembered, made their immense profits east of Hallett's cross-course, and it looks as if the present company were going to be similarly rewarded in the western ground, for in all the lodes which are now being worked is rich copper ore being broken. A reference to the report of the meeting, which appears in another column, will justify the attention which is being given to this property on the market. Not only is every lode producing copper ore, but the quality of that being raised from the Menadue lode is of the richest quality. A feature here, which must not be overlooked, is

the fact that the property can be worked without steam-power, hence a considerable saving on outlay account and permanent moderate cost. With the excellent prospects before the shareholders, it will not be a matter of surprise to anyone if a very considerable advance in the market price of the shares should rapidly take place.

RINGOLD MINE.—We visited this mine lately, and found that in the 160 level the ore for a considerable distance north and south has been stopped out. From the 160 to the 200 is virgin ground. The ledge is in sight above and below, and looks well. A winze has been started on the ledge to connect with two levels. One compartment of the shaft is used for hoisting; the other is occupied by the ladders, which are arranged with a view to the safety of the men in ascending and descending. In addition to the machinery which we have heretofore described, a fan-blower has been put up, with pipes reaching all the working levels, thus supplying an abundance of pure air. A new shaft has been started several hundred feet south of the main shaft, at a point where the croppings are from 10 to 15 ft. wide. A considerable quantity of fine-looking ore has already been taken out, which will be run through the mill to determine its value.—Mining and Scientific Press, San Francisco, July 31.

HOT-AIR ENGINES.

A simple, efficient, and economical hot-air engine has been invented by Messrs. LLOYD and ROGERS, of Smethwick, which consists essentially of a pressure accumulator or reservoir containing air, by preference of a pressure of 80 lbs. on a square inch; two cylinders and pistons similar to those of a steam-engine, and a condenser containing air under a pressure, by preference, of 40 lbs. on the square inch, and of a heating chamber through which the air passing from the reservoir is heated before entering the first or hot-air cylinder. The air employed circulates through the apparatus, passing from the reservoir to the heating chamber, from thence to the first or hot-air cylinder; after having acted upon the piston in that cylinder it passes to the condenser, where it is cooled, and from thence to the second or cold-air cylinder. Finally, it returns to the reservoir from the cold-air cylinder. The reservoir and condenser are immersed in water to keep them and the air contained in them cool, and the two cylinders are jacketed, the first or hot-air cylinder having a case containing air, by which its cooling is prevented; the second cylinder having a casing containing water, by which it is kept cool. The cylinders are provided with slide valves resembling those of a steam engine, and the piston rods of the two cylinders are connected with cranks on the same shaft, to which shaft rotary motion is communicated by the cylinders. The passage between the reservoir and heating chamber is provided with a stop valve and a back pressure valve, the former to regulate the flow of air from the reservoir, the latter to prevent the return of air from the heater to the reservoir. The passage between the cold air cylinder and the reservoir is provided with a back pressure valve.

The action of the engine is very simple. Air at about 80 lbs. pressure passes from the reservoir to the heater; by the heat it there acquires it is expanded into double the volume, having the original pressure, or about the original pressure. The heated air acting on the piston of the hot air cylinder urges it from end to end of the cylinder. By the action of the slide valve the communications are reversed, the air which has filled the cylinder being put in communication with the condenser, and hot air from the heater is at the same time admitted to that end of the cylinder which was previously in communication with the condenser. The air which enters the condenser is rapidly cooled, and its pressure reduced to (say) 40 lbs. on the square inch. The cold air cylinder in communication with the condenser has its slide valve set backwards, so that it acts as a pump for compressing the cold air of the condenser, and returning it in its compressed state to the reservoir. Cold air of (say) 40 lbs. pressure passes from the condenser to the cold air cylinder as the piston passes from one end of the cylinder to the other end. On the piston making its return stroke this air is compressed by the motion of the piston, until the piston having made half its stroke the pressure of the air is doubled, and it now has the pressure of 80 lbs. on the square inch, in which state it returns to the reservoir to pass again to the heater and hot air cylinder.

It will thus be understood that the effective power of the engine at each stroke of the hot air piston is the power due to the pressure of 80 lbs. on the square inch on the said hot air piston, diminished by the equal resistance of the cold air piston through the second half of its stroke, and the resistance gradually changing from 40 to 80 lbs. pressure during the first half of its stroke. The motion of the crank shaft is equalised by a fly-wheel. The engine they have described is the simplest form of the invention. Several of the hot and cold air cylinders may be combined, and where, as in locomotive and marine engines, a uniform and easily reversible motion is required, they so arrange the cranks with which the cylinders are respectively combined that the shaft rotates with a uniform or nearly uniform power, and has no dead points. They prefer to make the faces of the slide valves and their seats curved instead of plain, and the valve mechanism may be worked so that the hot air may be cut off at any part of the stroke of the piston and the hot air used expansively.

In order to facilitate the starting of the engine, as well as to assist engines requiring to be readily reversed, they use a relief chamber, in which the cold air behind the piston of the cold air cylinder is for a time received, thereby allowing the cold air of the condenser to act more efficiently on the other side of the piston. After the engine has been started the communication with the relief chamber is cut off, the air being returned to the reservoir by an auxiliary pump.

LEAD ORES.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Aug. 20—	Minera	50	£10 12 6	Walker, Parker, and Co.
—	ditto	50	10 10 0	ditto
—	ditto	50	10 10 0	ditto
—	ditto	33	10 15 6	ditto
24—	Foxdale	100	13 0 0	Par Smelting Company.
26—	East Roman Gravel	40	10 10 0	A. Eytton.

GROGWINION.—This company has sampled 100 tons of lead, for sale on Sept. 3.

FRONGOCH.—This company has sampled 100 tons of lead, for sale on Aug. 31.

BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Aug. 20—	Minera	60	£4 15 6	Vivian and Sons.
—	ditto	60	4 15 6	ditto
—	ditto	56	4 9 6	Crown Zinc Company.
—	ditto	80	4 4 6	Vivian and Sons.
—	ditto	48	4 4 6	Dilwyn and Co.
—	ditto	30	4 2 6	The Villiers Spelter Co.
26—	East Roman Gravel	20	3 12 0	Vivian and Sons.

BLACK TIN.				
Date.	Mine.	Tons c. q. lbs.	Price p. ton.	Amount.
Aug. 24—	So. Condurrow	25 13 1 5	—	—

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mingham.

FRONTINO AND BOLIVIA (SOUTH AMERICAN) GOLD MINING COMPANY (LIMITED).

Notice is hereby given, that the Directors of this Company have THIS DAY
DECLARED A DIVIDEND OF ONE SHILLING PER SHARE on the fully-paid
up shares, and a PRO RATA SUM on the shares with 5s. only paid, free of
income-tax, and payable on and after the 13th of September, 1880.
And notice is hereby given, that the Transfer Books of the company will be
closed from the 1st to the 13th September, 1880, both days inclusive.

By order of the Board,
J. JAMESON TURAN, Secretary.
164, Gresham House, Old Broad-street, London, E.C., Aug. 27, 1880.

MINE "E L C A L L A O," GUAYANA, VENEZUELA.

COUPONS OF SHARES 322
Gold in bars produced in the month of July, 1880, remitted to Messrs.
Baring Brothers and Co., London, 5466-38 ozs.
DIVIDEND distributed for each coupon, \$100.
(Signed) A. LICIONI, President of the Company.
(Signed) VICTOR J. GRILLET, Treasurer.

MR. CHARLES WILLIAMS, Mining Engineer and Surveyor,
DALE, TALIESIN R.S.O., CARDIGANSHIRE, VISITS all the PRIN-
CIPAL MINES in the CARDIGANSHIRE DISTRICT, and is PREPARED to
FURNISH CAPITALISTS with RELIABLE INFORMATION respecting all
classes of MINING in this important county.

C. W. Specially Recommends a Mine now making good profits, that will
advance 200 per cent. in value in less than six months. Particulars on application.

MESSRS. THOMPSON AND SON, STOCK AND SHARE
BROKERS, OLD TOWN STREET, PLYMOUTH.
Have special business in NEW PENROSE and PORTSCUE MINE Shares
(Limited), which are recommended at present prices for a great rise.

JOSEPH JAMES REYNOLDS, STOCK AND SHARE DEALER, 6, MOORGATE STREET, LONDON, E.C.

ESTABLISHED 30 YEARS.

The increasing favour for minings as an investment has caused J. J. R. to select
three or four Progressive Mines which possess the strongest claim on public
confidence. These consist—first, of proved lodes and strata; second, abun-
dant of capital subscribed; third, proved mining knowledge to rapidly and
properly apply the same.
J. J. R. confidently believes that at least three of the four mines referred to
will not only declare dividends, but will advance in price some hundreds per
cent. in a short time.
J. J. R. has spared himself no trouble in making his selection, knowing that
in bringing money to his clients he enlarges his own business by having caused
increased confidence in his judgment and knowledge. J. J. R. WILL SELL—
20 Bedford United 20s 6d 10 Guniflake, £4. 10 Red Rock, 25s.
10 Bodidris, 18s. 6d. 25 Gawton, 30s. 10 Ruby, £7 5s.
1 Carn Brea, £87 10s. 20 Hingston Down, £1½ 50 So. Penstruthal, 10s.
10 Caron, 20s. 10 Herodsfoot, £4. 5 South Frances, £11 10
25 Consolidated, 11s. 3d. 20 Nouveau Monde, 15s. 20 Tamara, 21s.
50 Chontales, 5s. 6d. 50 Lady Ashburton, 20s 6 20 Trevince Con., 15s. 3d
1 Dolcoath, £57 10s. 20 Novau Monde, 15s. 20 Tolima, A, £3 10s.
5 Devon Consols, £13½. 25 No. Penstruthal, 30s. 25 Wh. Jewell, 15s.
50 Don Pedro, 11s. 3d. 50 North D'Esrey, 20s. 10 Wheel Bassett, £4.
10 East Lovell, 27s. 6d. 50 No. Herodsfoot. 10 Wh. Crebor, £4 5s.
10 East Caradon, £2. 20 Parya Copper, £1 6s 3 10 W. Caradon, £2½.
50 E. Devon Con., £2½. 25 Port Nigel, £1 11s. 50 Port Phillip, 10s.
25 East Van, £2. 20 Prince of Wales, 23s 9 25 Morfa Du, 21s. 3d.
15 Glenroy, 11s. 20 Polrose, £1 10s.

CAPTAIN WILLIAM NORTHEY has placed in his hands
FOR DISPOSAL a MINE, with ample MACHINERY for CRUSHING,
WINDING, PUMPING, and DRESSING, where £1000 would be sufficient to
give it a thorough and efficient trial.
Captain NORTHEY also recommends SHARES in ONE MINE that will soon
rise 500 per cent. All particulars on application.
South View Cottage, Goginan, Aberystwith, 19th August, 1880.

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

COPPER MINES.—"C. W." (Paris).—The Vignas Company does not appear to have any offices in this country. The offices of the Vignas are at 5, Knightbridge-street, London. The former mines are in Scandinavia, the latter in Germany.

NICKEL AND COBALT.—"F. W. G." (Bodmin).—The last published list has been forwarded by post. The revised official list is now in course of preparation, and will be published in a few weeks.

Received.—"Shareholder" (Scotland) wishes for some particulars respecting the West Goggin Mine—"O. N." (Leicester).—"M. Y."—"C. R." It was right. We shall be glad to receive such matters whenever convenient to forward them.—"T. R. E."—"Shareholder" (East Craven Moor): A report of the meeting will appear in next week's Journal—"Old Reader" (Greenwich): A letter addressed to Mr. Henwood, sent to our office, will be forwarded—"A Miner" (Redruth).

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, AUGUST 28, 1880.

COAL DUST, AND COLLIERY EXPLOSIONS.

The effect of coal dust in connection with colliery explosions we think has not had that amount of attention paid to it which it certainly deserves. Some time since we drew attention to the subject, and in last week's Journal Mr. D. P. MORISON, of Newcastle, again brings the matter forward in the shape of a letter. We certainly agree with Mr. MORISON that coal dust by itself could not originate an explosion, but at the same time we believe that it may be one of the agents for such an occurrence, and that a powerful one, too. Having paid some attention to the power of coal dust under certain conditions, as well as to the character of the mines where explosions have taken place, we consider that the dust at least intensifies the disastrous effects of an explosion, and also that the latter generally take place in mines where the seams worked are dry as well as warm. In wet workings there is undoubtedly less liability to a lamp becoming so charged with dust that it will ignite outside than where they are dry. Many instances of this could be given, and we may say that at the Oaks, where the most terrible explosion on record took place, is a very dry one, of which we have had experience on more than one occasion. So much is this the case that the chief manager has the roads and workings frequently watered, as he considers that the dust is not only injurious to the workmen but greatly impedes the ventilation, in that way alone aiding in the formation of an explosive mixture by allowing gas to accumulate, owing to the air not being in sufficient quantity to neutralise it. But the manager of the Oaks goes farther, and gives it as his opinion that the dust after an explosion causes many of the persons in the mine where it has taken place to be suffocated, for on examining bodies that have been brought out of working places after an explosion their nostrils, ears, and eyes have been completely filled up with coal dust. But he has found it not only injurious after an explosion, but where it has been set fire to by a shot, when it burnt the same as gunpowder. His experience also is that the fires after an explosion in mines have been caused by the coal dust, whilst the most serious disasters from the ignition of gas have taken place in dry pits. We know that after a fall of the mineral or by the concussion caused by a shot the finer portions of the dust surrounds the lamp, be it a safety one or otherwise. It is, therefore, quite probable that a lamp in a very dry and dusty place can be so permeated with dust that when an explosion takes place by a shot or a fall of gas (which always causes a concussion of the air) for the light to be drawn through the lamp, and explode the dust on the external portions of it, and then igniting any gas that may be in the vicinity of it. That fine coal dust will burn like gunpowder will be seen by throwing a small quantity of it on an ordinary fire, so that there can be no reason to doubt that the fine particles flying about in the working place of a mine will ignite at a lamp. Then, as we have before stated, the ventilation in consequence being impeded to the extent of not being sufficient in quantity to render the gas around harmless, it can be readily ignited, for, as Mr. MORISON truly says, in a warm and dry seam it does not require much initial heat to spread over a large area an immense body of flame and an enormous alteration in the atmospheric condition of a mine. In connection with the condition of mines, it may be said that those in the South Yorkshire district in particular, where the most devastating explosions have taken place, are both dry and, of course, warm, and have a constant current of fine dust going through nearly every part of them, which a casual visitor finds by expectoration after being down one of the pits for only a short time. The result of the experiments that have been going on for some time it is expected will be given in the report of the Royal Commission on Mines, but whilst we are waiting for that explosions continue to take place, lives are lost, and many persons are injured as well, from what may be considered as preventable causes. Mines in which large numbers of men and boys are employed, hundreds of lights burning, and horses working are not always the healthiest of places for workmen; but we are told that where all known means are employed to render the temperature good and neutralise the gases given off, mines can be made more salubrious and agreeable as places of work than those in which many kinds of labour are carried on above-ground. Yet we have, with one exception only, never heard of any attempts being made to prevent injury to the health of the miner from the inhaling of coal dust whilst following his employment. In dry mines this could be best accomplished by watering the floor, as is done at the Oaks Colliery, which would not only make the roads and working places far more healthy, but would also give increased safety by preventing the powdered coal adhering to the lamps and igniting. This would be neither a difficult nor yet a costly matter, considering the benefits that would be derived from it to owners and workmen. We also think that it would be comparatively easy to obtain information as to the character of the mines where all the great explosions have taken place during the last 15 or 20 years. It might readily be obtained we believe by the Government Inspectors and Sub-Inspectors. For our own part we believe that in almost every instance the mines would be reported as dry and warm where great explosions had taken place.

STEEL RAILS, AND BRITISH FARMERS.

A writer in the Fortnightly Review makes the somewhat startling assertion that Sir HENRY BESSEMER has done more than any living man to break down the social system of which his title marks one of the orders. This may appear a startling assertion; but there is, at any rate, a grain of truth in it. It is the old House-that-Jack-built story. Sir HENRY BESSEMER was the inventor of Bessemer steel, and it is Bessemer steel which has enabled steel rails to be made at a cheap rate. Sir HENRY BESSEMER was knighted for his metallurgical triumphs, and he may be said to be the Jack who contrived the steel rails which made the cheaply maintained American railroads. The cheaply maintained American railroads have enabled the farmers of the Great West to deliver their wheat at a marvelously cheap rate at Boston, Baltimore, Portland, and New York; and from one or other of those ports American wheat finds its way cheaply and rapidly to Liverpool. It there comes into keen competition with English wheat; and, the British aristocracy being essentially a territorial aristocracy, the intrusive American wheat deals a blow at the land, which is the mainstay of the fashionable social system of which the Fortnightly assumes that Sir HENRY BESSEMER has become a part. Let us revert to our old nursery system of reasoning. We may sum up by saying that Sir HENRY BESSEMER was the Jack who contrived the steel rails which made the cheaply maintained American railroads, which carried at a marvelously low rate the Western

American wheat which half-ruined the struggling English farmer, who paid or tried to pay the rent, which formed the mainstay of the territorial aristocracy of Great Britain.

So much for the Fortnightly and its reasoning, in which, as we have already observed, there is, at any rate, a grain of truth. But there have we fancy been other influences at work. The progress of the Great West in population during the last seven years has been very remarkable; and, of course, its growth in population has been the means of bringing a large amount of additional earth under the plough, and a large amount of additional wheat down to Chicago. All the steel rails in the world would not have cheapened wheat in Europe if the Western American States had not become larger and larger wheat growers. Another circumstance which has enabled American railroads to carry wheat upon cheaper terms has also been the tendency to amalgamation which has appeared among them of late years. A line of 2000 miles can probably be worked upon cheaper terms and conditions than one of 1000 miles. Moreover, the financial management of large railroads is, as a rule, likely to be better and sounder than that of small systems. Such men as VANDERBILT, GARRETT, TYLER, JEWITT, JAY GOULD, and SCOTT have cheapened the barrel of American flour at Liverpool, as well as Sir HENRY BESSEMER and his steel rails. Still, even allowing for all this, we return to the original argument of the Fortnightly; and we are fain to confess that in our judgment steel rails have really been attended with great social—and even, perhaps, great political—results. For the matter of that railways must be said to be generally powerful democratic agents. The railway system has not yet annihilated the British aristocracy, because with all its faults and shortcomings the British aristocracy possesses noble and generous instincts, and has still a certain popularity with the British people. But, at the same time, the British railway network has contributed beyond a doubt to the growth of popular power in this country.

OUR SLAG INDUSTRIES.

The progress in the utilisation of the immense quantity of slag made in connection with the production of pig-iron has certainly not been such as was anticipated some two or three years since. Considering that some millions of tons of slag are turned out annually, occupying a vast area of valuable land, it is surprising, considering the many purposes to which it can be profitably adapted, that such vast heaps are allowed to cumber the ground. As we have before pointed out, it can be made into glass for bottle making, building bricks, tiles, drain pipes, concrete, paving blocks, wool for covering steam-boilers, and every description of pipes, as well as for many other purposes. We have seen buildings erected of slag, and very well they looked, whilst for road-making it is extensively used. Glass bottles of excellent quality have been made from it, and not so long since large works were erected at Finedon, a short distance from Wellingborough, in Northamptonshire, and close to the works of the Glendon Iron Company, where there are four blast-furnaces, for carrying out BRITTON'S patent process for manufacturing them. The works, however, were standing in the early part of the year. But for bricks the slag is particularly well adapted, and at the few works established for their production a large business has been done, and it has been found necessary to have special machinery made for making them. The moulds are made deep, owing to the ground slag being spongy and compressible, so that the water escapes without injuring the bricks, whilst great care has to be used in mixing lime with the slag. The machine used by the Cleveland Slag Company was a most powerful one—indeed, it was said to be the most powerful mechanical brick press ever made. The pressure was given by two cast-steel cams, fixed upon a forged steel shaft $7\frac{1}{2}$ in. in diameter, resting on bearings between two strong frames; put in motion by very powerful double-gear spur-wheels, the first motion shaft having a heavy fly-wheel upon it, to steady and equalise the pull upon the strap. The pressure-cams act against rollers fixed upon two steel cylinders or rams, which transmit the pressure to the moulds. The table is circular, with six pairs of moulds, so that four bricks were pressed at one time, the table remaining stationary during the operation. Whilst the bricks were being pressed two other pairs of moulds were being filled up with material, whilst the other two pairs were delivering up the other four bricks pressed at the previous revolution of the cam-shaft. The bricks were pushed out of the moulds by smaller pistons, acted upon by separate cams. The moulds were lined with changeable steel plates less than a quarter of an inch in thickness, and the sand and lime fed into them by two pug-mills, fitted with six knives each, so as to thoroughly mix and chop the slag with the lime. The table is shifted round by a kind of ratchet-motion, worked by a cam on the outside of the framework, and acting upon weight-bar and lever. Immediately above the pressure cylinders are two pressure stops, which are held down by heavy-weighted levers, which receive the whole of the pressure put upon the bricks, and should there be too much sand in the moulds they simply lift up and relieve the strain. The moulds were filled so as just to lift the levers in ordinary work. The filling was easily regulated by the set of the knives on the pug shaft, which pressed the material into the moulds, and one side of the pug-mill cylinder was made to open, so that the knives were accessible at any moment. The pug-mills were filled by means of a measuring and mixing apparatus placed on the floor immediately above the brick-press.

The measuring and mixing apparatus was most efficient and simple, and worked without any trouble. The sand slag was tipped into a hopper by means of large barrows, which were lifted up by a hoist, and at the bottom of the hopper there was a revolving cylinder with ribs cast upon it, and as they revolved under the hopper they carried a certain thickness of sand, which had been previously regulated to the requirements of the press. After that the slag falls upon a sieve, which separates any large pieces in a solid state, and at the same time allows the sand through the sieve to fall like a shower. The lime was fed into a separate hopper, and was regulated very much like the feed of corn into mill stones. The lime then passes down a shoot which formed part of the slag sand sieve, where it met the shower of sand, falling together with it, thus getting thoroughly mixed. The lime was silicious lime, and was prepared at the works. The bricks when taken from the press were placed upon spring barrows holding about fifty each, when they were taken and stacked in sheds, where they were allowed to remain for some five or six days, after which they were simply stacked outside in the weather so as to harden. The ordinary percentage of loss did not average more than 2 or 3 per cent., whilst when once the bricks were on the barrow there was little or no waste. Each machine was capable of turning out upwards of 10,000 bricks per day. The advantages claimed for the slag sand bricks—being pressed they are perfectly uniform in size and thickness; they are much cheaper than ordinary red bricks compared in weight with them, as they will weigh considerably less, and there is the still farther advantage that there are no wastes or halves. At another works the slag was pulverised, whilst no lime whatever was used. The slag was in solid balls made from Bessemer iron, and broken into pieces sufficiently small to pass under very massive edge-runners, where it was ground or crushed by the sheer weight of the runners into small dusty shingle, when it was passed by the elevator into French burr millstone, and ground into powder. It then passed into the brick press, very well damped with water before pressing. The press had a rotary table, and the material was fed into moulds recessed in it by hand. The bricks, it may be said, meet with a ready sale, and we certainly think it would be greatly to the advantage of our ironmasters were they to utilise in the manner indicated the vast heaps of material that disfigure and lay waste so much valuable ground adjoining their works.

LEAD AND LEAD MINING IN DERBYSHIRE.—In another column of to-day's Journal is published the commencement of a highly-interesting and exhaustive paper upon this subject, read before the Chesterfield and Derbyshire Institute of Mining, Mechanical, and Civil Engineers, by Mr. ARTHUR H. STOKES, F.G.S., one of H.M. Inspectors of Mines, and the remaining portions will appear from week to week until completed. The subject is treated historically, scientifically, and commercially, and the paper throughout gives evidence of a large amount of laborious research having been bestowed upon it.

The general character of the paper may be gathered from the full abstract of it published in last week's Journal, and in its complete form it will have lasting importance for reference by those engaged in mining in the district.

BRISTOL MINING SCHOOL.—The premier position on the list of the Royal Exhibitions awarded by the Department of Science and Art has been taken by Mr. RALPH BODEY, a student of these schools. The exhibition is held for three years, and is of the annual value of 50L., with free entrance to the laboratories and lecture rooms of the Royal School of Mines.

COMPENSATION TO WORKMEN.—There was something ironical in the remark made by the Attorney-General in the House of Commons on Monday night with respect to the Employers' Liability Bill. He said that owners of ships insured the lives of their crews, so he was of opinion that mineowners if the Bill passed would have a sufficient interest in their workpeople to insure their lives. Considering that the effects of recent legislation has been to heavily tax mineowners, so that at the present time they are carrying on their works without any profit whatever, the proposal is certainly a monstrous one. The Attorney-General is evidently not aware of the consequences which his proposal involves. In some of our largest collieries more than a thousand men and boys are employed, so to insure their lives, in such a risky employment, would require about 3000L. a year. Why an employer should be so taxed, whilst the workman should become even less provident than he is at the present time is not so logical a conclusion as might be expected from a judge expectant. Our leading men have long been endeavouring to inculcate habits of thrift upon the working classes, but the proposal of the Attorney-General is that of an entirely opposite course, for he would make employers do everything for their workpeople without any counter-balancing advantage. Mineowners are now heavily handicapped, and to still further impose liabilities upon them, such as insuring the lives of those whom they employ, would simply be to cause serious loss of capital, and at the same time lessen the number of persons employed in mining operations. If there is to be insurance it should be mutual, to say the least, where both masters and men should be interested in contributing towards it. An effort in that direction will be made in the House of Lords in the case of the Employers' Liability Bill, and it is to be hoped will be successful.

IMPROVED REVOLVING SHUTTERS.—Messrs. SALMON, BARNES, and Co., of the Canal Head Foundry and Engineering Works, Ulverston, have had the contract for fitting up Childs' Bank, Temple Bar, with their iron revolving shutters, which are worked by the firm's patent balance-weight motion, and are so fixed that they can be raised and lowered by a cord from the inside. The workmanship and motion appear to be very good. The shops and stalls of the new Dublin markets are also being fitted up by Messrs. Salmon, Barnes, and Co.

GOLD MINING IN THE DUTCH WEST INDIES.

The constantly accumulating evidence that enormous auriferous wealth has been neglected in Southern India, and is now available for creating dividends for shareholders, has naturally caused increased attention to be directed to gold mining generally, and many promising gold properties which had fallen into abeyance have been enabled to secure the necessary additional working capital, and seem now likely to prove remunerative. Reference has several times been made in the *Mining Journal* to the operations of the Aruba Company, whose existence in its earlier days has been like that of so many other mining companies—full of disappointment and difficulty. The Aruba Agency Company, however, which has been working the mines for some two years or so, has been so far successful that some of the chief shareholders and bondholders now feel warranted in converting their mortgages into ordinary fully paid shares. It will be remembered that the Aruba Island Gold Mining Company held a valuable concession from the Dutch Colonial Government of Curaçao for 35 years from June, 1868, but their working capital having become exhausted arrangements were made with the Aruba Agency Company whereby such company took over all the property and rights of the mining company in consideration of paying thereto 25 per cent. of the net profits.

When the Aruba Agency Company recommenced operations in 1878 they found that the whole of the mines and plant required thoroughly overhauling, and increased their capital accordingly, and have since been steadily developing the mines, and adding to the plant. It appears that the company has expended up to date in machinery, plant, development and general mining operations at Aruba, inclusive of expenses in London, about 27,000L. Of this 7222L. in share capital subscribed, about 11,200L. has been advanced by some of the shareholders upon mortgage, and 7262L. 4s. 6d., the proceeds of the sales of gold received from Aruba since July 1878 and sold in London. Further unforeseen delays attended the mining operations of the company, notably in an unprecedented difficulty during the last harvest season, in getting the natives in sufficient numbers to work in the mines. This difficulty has been remedied by the Government of Curaçao having recently granted the privilege of importing labour from the neighbouring islands or elsewhere, and in May last a number of Italian miners, in charge of an English overseer accustomed to them, were dispatched to Aruba, and they are now on the island and at work. In the development and working of the gold mines to this date the Agency Company has, it is stated, crushed upwards of 3000 tons of ore, and this ore has given mill sample assays ranging from 34 ozs., downwards, of gold per ton. The average assay would be about 14 oz. per ton. Some of the trial samples of ore have assayed over 100 ozs. of gold per ton, and in two cases over 200 ozs. The average yield of gold from the 3000 tons above mentioned has been over 14 dwts. per ton. This has been the result of the first process only, and it is estimated that the mass of tailings now existing on the island for subsequent treatment contains upwards of 10,000L. worth of gold. A calcining furnace and other appliances for treating the tailings have likewise been sent out. There are also several thousand tons of dump ore on the island, from which considerable gold can be extracted.

The very name of the island upon which the property is situated—Aruba ("Where gold is")—should prove attractive, and it is stated that the island is about 30 miles long, and has an average width of about seven miles, giving an approximate area of 200 square miles, the most of which is known to be gold-bearing territory. The island contains about 5000 inhabitants, and is under a Lieutenant-Governor. There is a costless and inexhaustible motor in the wind which blows for ten months of the year at an average speed of 15 miles per hour. The velocity of the wind is daily recorded, and three Warner's wind-engines which have been sent out are doing their present work of pumping well. It is proposed shortly to utilise the wind for crushing purposes, and thereby largely reduce the consumption if not supersede the use of coal. Up to the present time there have been discovered more than 200 gold mines in Aruba, and it is only reasonable to suppose that many more are concealed by the alluvium which has been washed down from the mountains. Before the Aruba Island Gold Mining Company purchased the property in 1872 it was fully examined and reported upon by Mr. Frank Taylor, of Messrs. John Taylor and Sons, the eminent mining engineers of Queen-street-place; and in his report Mr. Frank Taylor says, "I believe that in this little island there are more gold quartz veins than are known to exist in any other place of the same size." From the actual experience of this company since December, 1877, the directors are able to confirm all that Mr. Frank Taylor stated in his report of 1872. Fresh gold veins are constantly being discovered, which will give rise to hundreds of stamp-heads, or their equivalent number of pulverisers, so that it can fairly be said of the Aruba gold field that it is practically inexhaustible.

The executive are now seeking to raise additional capital, to be applied chiefly to continue the work of deep mining or development in the mines now opened and being worked, and in opening out and developing some of the other mines of the company, so as to increase the yield of ore per month; and it is expected by the directors that with the present staff and the plant now upon the island it will not be long before the mines pay substantial dividends. The Aruba Agency Company is, it appears, receiving remittances of "bar gold" each

month, and is, therefore, a "going concern." The floating debt of the company is about 20000, and the directors estimate that there is now upon the island (after crediting a new pulveriser, which has recently been sent out, with but half the capacity claimed for it) crushing power for forty tons of quartz per day of twenty-four hours. Taking, they say, but twenty working days in the month, this would give a total of 800 tons per month of crushed ore, which would give an average of 14 dwts. of gold per ton by the first process is not improved upon, the gross sales of gold per month, at 16800, would be 16800. The expenses should not be one-half; but even if the total expenses at Aruba and in London are one-half, the net profit per month by the first process, upon this calculation, would be 8400, or at the rate of 10,0800. per annum, equal to a dividend of 33 per cent. upon the capital of the company. In addition to the above estimated results by the first process, there would still remain the residue of the gold in the tailings to be extracted, month by month, besides the 10,0000. worth of gold estimated to be contained in the mass of tailings now upon the island. The directors moreover believe that 80 per cent. of the gold in the tailings—if not the whole of it—can be extracted by one or other of the processes which are now being investigated and tried. Reference is also made to an interesting and successful trial upon some Aruba ore, by a process worked by Mr. Bernard C. Molloy, M.P., which has recently been personally watched by one of the directors of this company. Forty pounds weight of refractory ore was treated, and upwards of 90 per cent. of the gold by assay was extracted. Some 10 or 15 tons of Aruba ore will shortly reach London for the purpose of further testing this and some other processes for the extraction of gold, both from virgin ore and tailings. If this further trial be successful it will be proposed, after all the free gold has been extracted by the first process, to concentrate all the tailings upon the island and to ship them to England for treatment, paying to the patentee a percentage to be agreed upon of the gold extracted. It is stated that several of the largest Sheffield shareholders and mortgagees, including Mr. A. B. Ibbotson (Ibbotson Brothers and Co.) are giving their active support, and that great and permanent success is confidently anticipated.

THE GOLD RICHES OF VENEZUELA.—No. III.

The official statistics of the State of Guayana for 1876 give the following history of the mines of the Nueva Providencia district:— Besides the mines of gold which are now so advantageously worked in this department the existence of the same metal is considered to be indubitable in other departments, and indeed in all the territories of the State, as well as other minerals equally precious, such as silver, iron, gypsum, limestone, jaspers of different kinds, and a great variety of rock crystals. But as geological descriptions of this important section of the Republic, the greater part of which is almost unknown, are few and far between, we shall content ourselves in this article with giving an approximate idea of the state in which the rich mines of gold to the south of the River Yuruari are found at present.

Notices of the existence of gold in this region are as old as its discovery, for the repeated expeditions of Spanish and other European adventurers in search of it in past centuries are well known. From these remote times, and leaving out of count certain vague notices of explorations made by the ancient Spanish missionaries, nothing certain is found until the year 1842, in which year Pedro Joaquín Ayres, a Brazilian, having visited the town of Tupuquén, first made known the locality of the auriferous sands of the River Yuruari. However, little importance was then attached to his assertions, which were shortly forgotten, until in 1849, when Andrés Hernández Méndez, Pedro Monasterios, and others, animated by these recollections and certain publications which issued from the Press, established gold washings in the sands of the River Yuruari and in the valley of Anacupai, from which works it is notorious they obtained quantities of gold. Confirmed day by day the riches of this region, and appreciated by the Government, effectual means were taken for profiting by them, and the deserted woods began to be populated with such rapidity that in 1857 there was a nucleus of population of more than 400 workers, who produced in that year \$300,000 worth of gold. The greater part of this quantity was in dust and nuggets, some of considerable size, of which two deserve special mention, one of pure gold weighing 250 ozs., and the other a bar 10 centimetres long and 5 centimetres thick, the weight of which was 24 ozs. These were found in the gold-bearing clay by Lino Acuña, a miner, and we mention them on account of the excitement they caused, and for the purpose of demonstrating the riches of these diggings. Until 1859 the workings were exceedingly imperfect, due partly to the complete ignorance of mining of the persons who carried them on, and partly to the want of capital, which rendered it impossible for them to erect the apparatus that is necessary for the crushing of the rock and unwatering the pits, or "barrancos" as it has been agreed to call them, from which the auriferous clay was taken out. This clay was afterwards washed in bateas of conical form, in which operation, being badly performed, much gold was lost.

In this imperfect manner the workings were continued until 1860, when, the Government having passed suitable laws, mining companies began to be formed, which for the first time introduced into the country steam-engines and quartz crushing machinery. It was believed at the time these mines were discovered that the land in which they are situated was simply an alluvial deposit, and, consequently, that the gold which existed in them was not derived from the immediate neighbourhood; but the more exact information which we now possess concerning them has demonstrated the inaccuracy of this opinion from the evidence afforded by the discovery of the precious metal in the quartz lodes which run through the country in all directions, and the richness of which is certainly immense, and indeed probably inexhaustible, if one may judge from their length and width, and from the splendid results obtained from them, results which are not less than \$40 to \$60 per ton of mineral.

The most notable lodes discovered up to the present time are those denominated Panama, Chile, Potosí, Peru, La Corina, El Tigre, and El Callao, the principal ones having a thickness of from 27 to 166 centimetres, with much visible gold. In some of them, for instance El Callao, the richest of them all, the quartz is almost white, and without stains of oxide of iron. Gold, then, is found in many quartz veins of importance, and in three distinct kinds of deposits—alluvial clay, a red coloured earth, and the sands of rivers and streams, particularly in the River Yuruari and in the affluents of the Mocupio. A new and very rich district has just been discovered in the district called Tumereno, at a place called Botanamo, at a distance of about 60 kilometres from Nueva Providencia.

The districts of Nueva Providencia and Callao contained in 1876 a population of more than 4000 inhabitants engaged in commercial and mining industries, the mining companies above referred to being the employers. The capital of these companies does not consist alone in the value of their reduction mills, but also must include the lands, the right to which they have bought for the sake of the woods covering them, the use of the surface and the exploration of the gold-bearing veins of those which are auriferous; also must be reckoned their saw-mills, railways, buildings, pumps, and other works already finished, and others in course of construction, no less important, for augmenting the number of stamps, &c.

The report ends by stating that "at but a short distance from the ports of the Orinoco, on the very lands which were the theatre of the sad scenes of the conquest, gold in marvellous profusion presents itself not only in the sands of the rivers, but in large and extended veins of quartz, filled with the precious metal, running in distinct directions, and comprising even so far only as at present known an area of 50,000 square hectares (about 120,000 acres) of auriferous lands, the riches of which form one of the many elements of a prosperous future which are contained in the bosom of the Republic of Venezuela."

Such is the account given officially of the rise and progress of the gold mining industries of Nueva Providencia up to 1876. History repeats itself, and what was written four years ago of that district is rapidly being repeated at Cicapras. First, the discovery of gold in clay strata, then the search for quartz veins, then the formation of strong companies and the erection of reduction mills and other works, affording employment to thousands and conducing to the gene-

ral prosperity of the locality. In another four years we probably may have the pleasure of chronicling a state of things at Cicapras equally gratifying with that given above of Nueva Providencia in 1876. Cicapras is now in the second stage. Gold has been washed out of the clay to immense profit for the last two years. Quartz veins have now been discovered, the rest is sure to follow.

GOLD MINING IN INDIA.

TAMBACHERY COFFEE ESTATES COMPANY.

The shareholders of the Tambacherry Coffee Company may fairly be congratulated upon the prospect which the report just issued affords them that a very important addition to their prosperity will be made, both by the success of the cinchona crop and the development of the gold reefs, which have now been ascertained to exist on their estates. They have now less than 75,821 cinchona plants growing, and the great bulk of them are doing well. The crop was 160 tons last year, against 152 tons the year previous, and the present year it will be 170 tons. Referring to the auriferous wealth of the company's property, Mr. David Rose, the resident superintendent at Vythery (July 27), congratulates the directors on having a fine display of quartz reefs on the Charlotte Estate, on Culloor, and on Adelaide Estate.

The whole valley of the Charlotte estate seems to him to consist of a series of reef. They have exposed several, but without the advice of an expert he refrains from saying how many distinct reefs there are. On this estate there is an ample supply of water power, and a large acreage of forest in reserve for prop wood for mines, or for firewood if steam is required as an auxiliary. He has had surface quartz analysed four times by Mint analysis, and gold has been found in each, ranging from 2 dwts. 4 grs. to 3 dwts. 6 grs., which, on examining Mr. Brough Smith's report, he thinks compares favourably with what he found in surface stone in the Devala district. They have no instances of old native workings to quote here, and this cannot be wondered at when it is considered that 40 years ago this corner of Wynad was an unbroken expanse of primeval forest.

It is quite authentic, however, he continues, that some years ago natives were in the habit of coming from a distance yearly after the rains to wash for gold in the Tanivot river (Charlotte), and the original landholder's family have a tradition that up to recent times the Coorbas and Punnias regularly washed for gold at the head of the valley. He only mentions these facts because so much stress has been laid on these old workings in other districts. It is sufficient for their purpose, he thinks, that their quartz is auriferous in no mean degree, and that they have abundance of it. On Culloor there are at least three well defined reefs known at present, but owing to the prevalence of leeches in the jungles at this season he has not been able to prospect the large tract of land lying round by Melina and Peringodda properties. Here, also, they have water-power, though not quite so abundant throughout the year as on Charlotte, and they have a large reserve of forest. On Adelaide Estate the crest of the new Nair's Hill is one mass of quartz, and they have uncovered a large outcrop of quartz at the Entrance Swamp. On this estate there is no water-power sufficient to drive heavy machinery, and steam will have to be employed if quartz crushing is gone into. Wood is also scarce, but on the Eva property they have a large stock of timber, and he could secure more in that neighbourhood. On Chundale they have a reserve forest at least 200 acres, and Adelaide is situated midway between Chundale and Eva about three or four miles.

On the other estates there are some small veins, but he had not as yet been able to follow them up to any reefs. Those portions of their land which are not freehold he had secured the mining rights over, excepting a small portion which he hopes to arrange in a few days. In forwarding this report to the shareholders the managing director—Mr. H. Tolpitt—states that the board have been much disappointed at the non-fulfilment of an arrangement they had made with a competent mining engineer to inspect the reefs of auriferous quartz on the company's estates; they have, however, now engaged another experienced engineer to go out immediately on their behalf for the purpose, and hope to receive a telegraphic report from him before the annual general meeting.

THE TANKERVILLE AMALGAMATION.

The rumour of the amalgamation of the Tankerville sett with two extensive properties adjoining, and as the details of the project are now before the shareholders some further reference may be made. The new company is to have a capital of 110,0000., in shares of 10 each, which will be issued part in shares and part in cash, and will suffice not only to secure the three properties, with the plant upon them, but will clear off the whole of the Tankerville debts (about 300000.), cover the greater part of the cost of forming the new company, give a handsome bonus to the present Tankerville shareholders, and leave an available working capital of 26,0000. Referring to the prospects of the enterprise, Mr. Arthur Waters gives some general observations, which many will regard as better data wherefrom to draw conclusions than special reports on individual mines. He very truly says that the district is celebrated for its highly productive and profitable lead mines, the group, which he designates as abutting on the "Hope Valley," with lodes running north and south (as at the Wood Mine, East Romans, Roman Gravels, and Old Grit, and White Grit Mines) having given large profits at one time or another, and No. 2 group, abutting on the Stiperstones range of mountains, which he considers to be the great backbone of the country, with lodes running nearly east and west (as at Snailbeach, Tankerville, Potters Pit, Pennerley, and the Bog Mines), gives statistics of greater output and larger profits to present date than No. 1 group. These facts he adds establish his proposition as to the celebrity of the locality. The mines are situated in the Llandillo flags of the Lower Silurian series, and this group of rocks is made up of large slaty beds and highly laminated bands of shale, which are traversed and much distorted here and there by the courses and bosses of greenstone, which mark the country across the strike of the beds and direction of the lodes, an interesting feature, noted by him 26 years ago, and acted upon as a clue to successful mining in Shropshire. From this it will be obvious that the mines of each group are properly placed in the same category as to geological, mineralogical, and local conditions.

The importance of the principle of amalgamation when the properties are worked with corresponding energy and judgment need scarcely be pointed out, for the reduction of fixed charges, which results not infrequently, represents a satisfactory dividend. One board of directors, one secretary, and one superintending manager at the mines can control three adjoining setts quite as efficiently as a single sett, and in many cases the working of adjoining properties under one proprietary leads not only to the reduction of fixed charges, already mentioned, but also facilitates more economic working. Had Devon Great Consols been worked as six or eight different setts, each with its own board of directors, superintending manager, and so on, it is probable that not only would all the separate mines—Wheal Maria, Wheal Emma, Wheal Josiah, and the rest—have proved unremunerative to those working them but even the richest of them would have been unprofitable, owing to the disadvantages under which the mine would have had to be carried on. But a case in which the evils of non-amalgamation have been and are (not merely might have been) felt is that of South Frances and West Basset, where both the mines, although they are at the present time paying large dividends, were reduced to ruin through the obstinacy of a single West Basset director, rendering arbitration and amalgamation impossible, and plunging both concerns into years of costly litigation, from which they have never recovered, and to judge from the views still entertained by the lords against amalgamation, never will. In the Tankerville amalgamation they are really seeking to create a property on the same scale—though producing lead instead of copper—as the Devon Great Consols, and there is no reason why an undivided management should not prove equally successful; more especially when it is considered that an underground agent can only efficiently overlook a given number of men in a given extent of workings, and that the mine may be equally well worked whether the reports be made to one or to several superintendents. The pro-

posed amalgamation certainly promises to increase both the efficiency and the economy with which the mines may be worked, and would, therefore, appear to be in every way worthy of the adoption and support of every proprietor. The meeting is to be held at the mines next week, and will be duly reported.

ENGLISH-AUSTRALIAN GOLD MINING COMPANY.

The advices received by the mail, which will be found in another column, exhibit a continuance of the satisfactory progress to which we have before referred. This mine, it will be recollected, is in the rich district of Fryerstown, Victoria, in the centre of a group of productive properties, and immediately adjoining the highly successful New Era Mine, the levels of the latter company having, indeed, broken into the workings of the English Australian Company. The quartz underlies from the New Era Mine into the company's sett, and, therefore, gives at each deeper level a larger amount of slopes, while lessening the distance to be driven from the shaft to reach the payable stone. The deepest level at present is the 420 ft., from which, however, little stone has yet been taken, the principal workings being in and above the 320 and 150 ft. levels.

The yield of gold has shown a steady increase since the commencement of operations by the company in 1877. In the first 13 months the average was about 200. per month, while the directors' report, issued in June last, showed a monthly (four weeks) average of 1800. over a period of 18 months; 3750. per month for the last six months of the accounts, and about 6000. for the month ending March last; resulting in an actual profit of nearly 5000. for the 12 weeks from Jan. 21 to April 13, 1880.

As soon as the new winding-engine, alluded to below, is in working order, operations can be commenced on a large quantity of ground already laid open for stopping, from which the returns will be increased.

At the latter date, in view of the greatly improved appearance of the mine, the agents decided on erecting a new winding-engine, which had been purchased and sent out from England, and was then on the ground. This has necessarily impeded the operations, but the alterations at date of last advices were nearly completed, and the next reports will, probably, bring news of the engine being at work. The agent states that he will then be able to crush one-third more quartz, and make the stone still more profitable. Notwithstanding the unavoidable disadvantages and expenses attendant on the carrying out of these works the mine accounts now received show that the returns have met the whole cost of every description in the colony, including expenditure on account of erection of the engine, and leave a profit of 660. for the month. The shaft is about to be sunk another 100 ft., to a 520 ft. level, and subscribed capital has been reserved for this purpose, but the financial agent hopes it will be unnecessary to make any remittance from England on this account, as he expects the expense will be met from profits; and, writing on July 8, he says—"I am of opinion that within a month or two I shall be able to give a good account of the mine."

The small capital of the company (22,0000.) has been so carefully husbanded under a directorate possessing practical mining and business experience, aided by Mr. J. H. Murchison, the London manager, that notwithstanding the amount of work done there is a substantial balance of assets available for any works that may hereafter be decided upon. There is direct railway communication with Melbourne within eight miles of the mines; labour is cheap and abundant; water is obtained at the Government mains and reservoirs at a nominal charge; the price of firewood is 5s. 6d. per ton. The numerous advantages possessed by the Australian companies will necessarily secure to them their share of the attention which is now being given to gold mining companies generally, and from the results already obtained there is no doubt that with its small capital, ample funds, and efficient management, none will stand higher in the public estimation than the English-Australian Gold Mining Company (Limited).

VENTILATING MINES BY STEAM.

Although ventilation by the steam jet is at least as old as the days of Buddle, it has never been considered by mining engineers to possess sufficient advantages to justify the substitution of it for the furnace; but it must be remembered that in the steam jet as applied at the beginning of the century there were several important drawbacks. In the first place the steam was usually permitted to escape into the shaft from one, sometimes two or three, rings of tubing, and these were placed sometimes at the bottom of the upcast shaft, sometimes about midway, and not unfrequently very near the surface. When at the bottom of the shaft the steam apparatus was really, so far as producing a current was concerned, merely an inefficient furnace, as it had to heat the entire shaft just as a furnace has, and the heated air ascending was cooled by the sides of the shaft in the same way, the ventilation being very slack at all times. But as the steam was always carried down from surface the ignition of the fire-damp was impossible, and thus the colliers' risk of death from explosions was lessened. The inconvenience of carrying the steam so far was seriously felt. As a remedy the steam apparatus was moved to near the top of the shaft, but although the temperature was higher the heated column was shorter, and thus but little advantage resulted. With regard to the third method, that of placing the steam apparatus midway in the shaft, there were still greater objections. The steam had not to be carried so far as when the apparatus was at the bottom, and a longer column was obtained than when it was near the top; but this upper column was long enough to permit the steam to condense before it reached the surface. The natural result was that the condensed steam fell in a shower to the bottom of the shaft, and thus positively tended to reverse the ventilation, and in deep shafts almost entirely neutralised the upward current caused by the uncondensed steam.

In carrying out the improvements proposed by Mr. Thomas Jones, of Maindy House, near Pontypridd, for generating and applying steam for ventilating mines, a boiler with its furnace is applied in or in connection with the upcast shaft of a mine or other place to be ventilated with a water-heating chamber for the supply of the boiler surrounding the flue from such furnace. Above this water-heating chamber there is a steam-heating chamber also surrounding the flue. These water-heating and steam-heating chambers extend up the flue a considerable distance, depending on the extent of heating power in the products of combustion in the flue. The steam portion of the boiler and the steam-generating chamber are connected by a pipe or pipes, and such pipe or pipes as well as the steam-heating chamber are provided with jets or outlets for the escape of jets of steam in an upward direction, so as to create or facilitate an upward current in such upcast shaft. From this steam-heating chamber he also conducts a steam pipe or pipes up the upcast shaft, which is also provided with suitable outlet passages for jets of steam to rise in an upward direction.

By these means a succession of jets of steam may be obtained progressively to aid in raising the foul air or gases and facilitate the discharge thereof. By these means life and property may be preserved, and the working in mines or other places will be facilitated. The supply of water to the boiler may in most cases be obtained of adequate pressure by the collection thereof from the sides of pits through a suitable pipe or pipes without the necessity for the use of an injector or other feed means. Relieving valves, passages, or outlets may be employed at different elevations in such feed pipe or pipes as may be desired to guard against excess of pressure. Safety valves and pressure gauges are applied as desired. Steam from the steam generator may also supply motive power to pumping, hauling, or other engines, either at the bottom or surface or other part of the mine or other place.

Now, it will be scarcely necessary to point out that although Mr. Jones' invention involves the use of steam it is entirely different from the steam-jet, and with some modifications might form an important auxiliary to the furnace. It will be observed that Mr. Jones does not propose to dispense with the furnace; and whilst it must be admitted that any obstruction introduced into the upcast shaft would reduce the size of the current, he has devised the means of raising the temperature so materially as to more than compensate. In effect he utilises the heat of the furnace which now goes into the rock, and does no useful work by applying it to heat an elongated boiler, which

extends to any desired height up the shaft. Every particle of heat is thus turned to account in the actual ventilation of the mine, and as the boiler would not be required to bear a heavy steam pressure, since nearly the whole of it would be filled with water, the first cost would be unimportant. The proposition should at least have a fair and impartial trial.

LEAD AND LEAD MINING IN DERBYSHIRE.

BY ARTHUR H. STOKES, F.G.S.

[Read before the Chesterfield and Derbyshire Institute of Mining, Mechanical, and Civil Engineers.]

The date at which lead mining commenced in Derbyshire cannot be correctly ascertained. It certainly commenced at a time when little, if any, record was kept, and even at later dates the records are such as to give only meagre information. The mining at the present day is governed by such antiquated and curious laws that any paper on the subject would be little understood unless some history of the mines and the laws under which they are held were given to explain the subject. The difficulty of obtaining information and of understanding the various customs handed down from one generation to another is not only great, but requires careful analysing before it can be accepted.

A glossary of terms used in lead mining will be found at the end. The lead mining of Derbyshire is mentioned in various works relating to the county; but the information appears to have been chiefly derived from one source, and to be based either upon the "Derbyshire Mining Customs" or Manlove's poem.

The first record of lead mining in Britain, and which might refer to as well as include Derbyshire, is that by Pliny, who lived A.D. 23-79. In one of his works he says:—"In Britain lead is found near the surface of the earth in such abundance that a law is made to limit the quantity that shall be gotten."

The Bole Hills are a standing record of the ancient mode of lead smelting, for ancient smelting hearths, termed "boles," and consisting of loose stones, were built upon the western brows of hills—hence the number of places in the county called Bole Hill.

Upon these hearths wood was laid, and over this the ore strewed. Fire was applied to the wood, and at first the wind was the only means of raising the fire to the necessary heat required to smelt the ore. In time, however, they were blown by bellows, like an ordinary blacksmith's forge; the bellows in some cases being so large that they had to be worked by horses. An author, in 1769, writes—"The furnaces are built on the hills; they burn wood in them. The bellows are kept in continual motion by running water." This mode of smelting lead ore was probably practised long before the Romans invaded the country, and it is likely was used by the Phenicians or by merchants from Gaul, who came over to England to obtain metals. It is not improbable some of the present laws and customs have been derived and handed down from these Eastern settlers. It was an ancient custom to cut down wood anywhere within reach for the purpose of either mining or smelting lead ore, and one of the Articles made at the Great Barmote Court, at Wirksworth, on Oct. 10, 1665, was as follows:—"Art. XIII. We say that for the payment of the said lot miners within the Wapentake of Wirksworth ought to have liberty to work the ground within the Wapentake, and to have timber also in the king's wastes to work their ground withal, and egress and regress from their highway to their grooves and mines."

The timber was not only used for smelting the ore; but it was also burned for breaking down the sides of the veins and getting the mineral, before blasting by gunpowder was known or employed in Derbyshire. This is shown by another Article made at the same Barmote Court—"Art. XL. We say that any miner in an open rake may kindle and light his fire after 4 o'clock in the afternoon, giving his neighbour lawful warning thereof."

How long this system of taking timber from the king's wastes lasted the author cannot say; but the introduction of gunpowder and the use of coal would probably be the cause of its first abandonment.

Bole Hills are, perhaps, the most clearly defined geographical position of the ancient smelting hearths, yet the word Tor—the name given to various high places in the county, just such places as would be convenient for the antiquated way of smelting upon the open hearth—may also indicate a smelting place.

In the year 714 the mines at and near Wirksworth were worked, and dues were paid to support the nunnery at Repton. It is stated that the abbess of this nunnery, in 714, sent a sarcophagus of lead to Croyland, in Lincolnshire, for the interment of St. Guthla, who formerly was a monk at Repton. The lead to make this sarcophagus was obtained from the mines at Wirksworth, these mines being part of the possessions of the nunnery; this is further confirmed by a grant made to Alderman Humbert by the Abbess Kenewara, who in 835 gave the mines at Wirksworth (Wirksworth) to the alderman, on condition that he should annually give lead to the value of three hundred shillings to Archbishop Ceolnoth, for the support of Christ's Church, Canterbury.

The Domesday Book mentions three mines at Wirksworth, and one at Crich, Ashford, Bakewell, and Matlock.* Peveril Castle, Castleton, or the Castle of the Peak, was roofed with lead, as appears from records made in the reign of Queen Elizabeth, and the date of building this castle is stated to be soon after the Conquest. The lead for the purpose was probably obtained from the mines in the Peak.

In the reign of Edward the Confessor the three manors of Bakewell, Ashford, and Hope paid 30*l.* and five cart-loads of 50 sheets of lead; the same manors paid only 12*l.* 6*s.* in the time of the Conqueror.

It might naturally be asked, if the mines are of such ancient date, what records have been found in recent years when either exploring or driving into the old workings; or, cannot the archaeologists of the county give some information respecting ancient lead mining? It is satisfactory to know that in exploring the remains of some of the Roman stations in the county the explorers have found pigs of lead bearing Latin inscriptions; these are now deposited in the Gallery of Antiquities in the British Museum.

In 1777 a Roman pig of lead was found near Cromford with a Latin inscription in raised letters on the top:—

IMP. CAES. HADRIANI. AVG. MET. LVT.

Various interpretations of this inscription have been given with respect to the LVT. According to Ravennas the LVT means Lutudum, the name of a Roman station, next in order to Derwenton, the Roman station at Little Chester, Derby, supposed by him to mean Chesterfield. But wherever the station, place, or town may have been it is quite clear the first part of the inscription refers to the Emperor Hadrian, and that the block of lead was impressed with an inscription indicating that it belonged to the Emperor Caesar Hadrian Augustus (A.D. 117-138) from the metallic district of Lutudum or Lutude.

In the year 1783 another block of lead, weighing 84 lbs., was found near Matlock. This block also had inscription upon it in raised letters as follows:—

LARVCNIVERECVTOMEALMVD

Here again the name of the metallic district Lutudum is mentioned. And, as in the former case, taking the three first names as indicating the owner, so in this inscription we may the letters preceding the name of the district to indicate the name of the owner or merchant, Lucius Arconus Vercundus.

A third block or pig of lead was found in 1787 near Matlock, and this, like the above-mentioned blocks, had an inscription in raised letters upon it; but authors have a little more difficulty in deciphering this inscription, which is as follows:—

TI. CL. TR. LVT. RR. EX. ARG.

Again the LVT. appears indicating the district, and TI. CL. TR. probably indicates that it was tribute due to Tiberius Claudius Caesar

* The lead works mentioned in the Domesday Survey are all upon the king's demesne in Derbyshire. In *Metastaford* we read *una plumbaria*. Domesday, Som. I., fol. 273. In *Worcester* "Thi sunt, illi, plumbaria." In *Badegvela* (Bakewell) *una plumbaria*. In *Alisford*, *una plumbaria*.

(A.D. 14-37). The EX. ARG. has been supposed to mean EX ARGENTO, or free of silver. This block of lead weighed 173 lbs., and was 17½ in. long.

Although the inscriptions upon the above three blocks or pigs of lead may or may not bear the interpretation put upon them by various authors, yet it cannot be denied that they are indubitable evidence that mines of the district were worked by the Romans. These pigs of lead are perhaps the greatest proof that can be brought forward to indicate the early date at which the lead mines were worked; and, supposing these inscriptions to be correctly interpreted, they would have been made between A.D. 20-138.

Another block of lead was found with the following inscription upon it:—

IMP. CAES. DOMITIANO. AVG. COS. VII.

It is 23 in. in length at the bottom, 20 in. upon the upper surface, and 4 in. in depth, weighing about 154 lbs. The inscription reads IMP. CAES. DOMITIANO. AVG. COS. VII., contraction for "Imperator Caesar Domitianus Augustus Consul VII.," being the name of the Emperor Domitian Augustus, and the date of the seventh year or time of his consulate. This inscription is referred to the year 81.

From the Roman invasion, B.C. 55, part of the mines appear to have belonged to various religious houses. History records the destruction by the Danes of various religious houses in 874, and afterwards the mines appear to have eventually passed into the hands of the Crown. The lead mines in Derbyshire certainly became the property of the Crown at a very early period. This would probably date from the ninth century; but we have little record of any working or letting of the mines until the year 1469. In that year during the reign of Edward IV. the mineral duties of mines north of the Trent were leased to Richard Earl of Warwick, John Earl of Northumberland, and others for a term of 40 years.

About 1580, or during the reign of Elizabeth, the mines or mineral dues in the Wapentake of Wirksworth were leased to Messrs. Warren and Skelton.

In 1609, in the reign of James I., the lease was held by Gilbert Earl of Shrewsbury; and in 1624, during the same reign, Robert Parker had the lease granted for 31 years, at the yearly rent of 72*l.*, and 1*l.* 6*s.* 8*d.* for the barmaster; but he could not have held it during the whole term, for in 1633 a lease was granted to David Ramsay for 31 years. At the expiration of this lease, and during the reign of Charles II., probably about 1664, a lease was granted to Edward Vernon for seven years, at 144*l.* for lot and cope, and 2*l.* 13*s.* 4*d.* for the office of barmaster, per annum.

At the death of Charles II. the Dowager Queen Catherine appears to have had the mines in Derbyshire as part of her dowry, for she granted a lease of the duties of lot and cope to Robert Freeman, Esq., from all the lead mines within the Wapentake of Wirksworth for a term of 31 years, from March 25, 1692. It is probable the whole of the revenue arising from the Duchy of Lancaster belonged to the queen at this date; and, this being part of the estate of the Duchy, she had power to lease it.* Robert Freeman did not retain the whole of the lease, but assigned one-third to the Chief Baron Montague.

In 1733 it is recorded that Elizabeth Lady Dowager Clifford, of Chudleigh, widow of Hugh Lord Clifford, being seized of two-thirds of the mineral duties, office of barmaster, &c., granted by Denzil Lord Holles and other trustees of Queen Catherine, deviseth or leases the same to Messrs. James Milnes, the younger, of Chesterfield, merchant; John Wall, of Wensley, gent.; Richard Milnes, of Chesterfield, grocer; Joshua Wheelton, of Chesterfield, distiller; Wyley Haward, of Comford, lead merchant; and Robert Matlock, of Darby, writing master, for the term of three years, from March 25, 1733, at the yearly rent of 433*l.* 6*s.* 8*d.*—a schedule as follows being given:—

The head farmer's rent	£650 0 0
The Crown rent	144 0 0
The Barmaster's rent	2 13 4

Total	£796 13 4
Lady Clifford's two-thirds	£531 2 2½
The other third	265 11 1¼ = £796 13 4

[To be continued in next week's Journal.]

THE RISCA EXPLOSION.

The inquest on the bodies of the men who perished in the Black Vein pit at Risca was re-opened on Tuesday before Mr. Edwards, Deputy Coroner. There were also present Mr. W. S. Wright, from the Home Office; Mr. T. Cadman, Inspector of Mines for the district; Mr. Bain, deputy inspector; Mr. Wales, inspector for Glamorganshire; Mr. Dickinson and Mr. J. E. Ward, Newport, representing the company; Mr. L. Llewellyn, agent at the colliery; Mr. Watts, Chairman of the company; Mr. Williams, the secretary; Mr. Bassett, Mr. G. Wilkinson, Superintendent Mackintosh, and Captain Fall. The Coroner briefly opened the proceedings by stating that they had assembled to inquire into an important matter, the cause of death of 120 of their fellow creatures. It was a matter they would have to go fully into, and he asked them to give great attention to the case.

A letter was then read from the Home Office announcing that Mr. W. S. Wright would attend as counsel on behalf of the Government, as also would Mr. Cadman, Inspector of Mines for the district. A long written statement by Mr. Llewellyn, manager of the pit, was read by Mr. J. E. Ward. It dealt with the situation of the colliery, with the mode of working in it, and the various means made use of to carry that out. The seam worked is that known as the Black Vein. It proceeded to set forth that three shifts of eight hours each were employed in the pit. Two shifts were for the coal, and the other attended to the repairing of the main road. Eight firemen were engaged to examine the roads. Three were for each of the coal shifts, and two in the repairing shift. Replying to Mr. Edwards, Mr. Llewellyn said that on the night before the explosion the shift descended at half-past ten. The explosion occurred at half-past one in the morning. He had been down the pit on the Monday previous. The men appointed their own examiners monthly. Some of the reports of these set forth that on the morning before the explosion various working places in the pit were found in working order, and free from gas and falls; 120 men and 68 horses were in the pit at the time of the explosion.

By Mr. Wright: Mr. Llewellyn said he had been at North Risca since March, 1879. He had no previous experience of the Black Vein seam, and was not a certificated manager of the pit now. He was agent, as provided for in the Act of Parliament. The nature of the roof in the pit is shale principally; it held gas. All the workings appeared to be affected by the explosion. Lives were lost all round. There was no survivor of those who were in the pit then. All the horses were killed. The roofs came down. Every man seemed to have been killed in the place where he worked. The men were apparently blown about, but not severely burnt. No doubt some were suffocated. The bulk of them were killed by the concussion. Before the explosion the barometer was steady. A thunderstorm had taken place, but there was no great drop in the barometer. There was no under-viewer, as referred to in the Act of Parliament. Witness did not consider one necessary as long as there was a certificated manager, with three firemen. No report was made to any of the authorities of the absence of an under-viewer. Witness thought it was a correct and proper thing for an officer of that kind to be dispensed with.

It was stated here that although provision is made for the existence of an under-viewer in the Act of Parliament, there was no obligation to appoint one. His duties were, in effect, performed by the overman.

Mr. Dickinson, Government Inspector of Mines, said the agent's

* The Duchy of Lancaster was annexed to the Crown by Edward IV.; but in such a way as to prevent a merger, and as the Earls and Dukes of Lancaster had *jura regalia* the Crown has the same prerogative in the Courts Palatine and in the Duchy, as in lands held *jure corone*.

duties were not defined in the Act of Parliament. He was regarded as superior to the certificated manager.

Witness further stated, in reply to the learned counsel, that he thought the explosion had its origin in Hill's or Wrentmore's heading, and then spread about. He could not suggest any other place. With regard to the cause of the explosion, he said he was of opinion that there was a fall of coal, that a quantity of gas became liberated and came into contact with a workman's lamp, and that, being unnoticed by the workman, it kept burning in the lamp until the gauze became heated or the glass broke, when it ignited. It could not have happened through any defect in the ventilation of the mine. Powder was used in the repairing shift, and a shot would be fired in the ordinary course of things during the night. Clanny lamps were used in the pit at North Risca. After the explosion he did not think so highly of them as before. He did not deem them as safe as other lamps. He knew of no accident having occurred there, but he heard it was subject to blowers. He heard that a lamp broken with a pick was found in the pit where the explosion occurred. He did not attach much importance to it, for it might have been broken by being knocked about. A workman might have broken it with a pick accidentally, but not purposely.

The lamp was produced, and it was stated that a workman could not get at the light through the place where the hole was in the lamp. The hole was about the size of a large pea.

Witness further stated that he regarded the system of longwall work as preferable to the double-stall system. He thought the latter preferred the former.

A number of other witnesses—overmen, firemen, and others—were examined, and they all testified as to the absence of gas from the pit; and the lampmen said the lamps were safe when given out. One had a pick hole in it. Three-fourths of the lamps that came out were damaged.

On Wednesday the inquest was continued. Mr. Evan Evans, the certificated manager of the colliery, stated that on July 14 he proceeded through the workings. He found everything in good order, and plenty of air throughout the whole of the district he travelled. In reply to Mr. Wright, witness said he went through Hill's and Wrentmore's headings. He did not visit the west side of the mine. He discharged the duty of under-ground viewer. The duties were properly done. He had formed the opinion that the explosion first took place at Wrentmore's and Hill's headings, and that it was occasioned by a sudden outburst of gas. Did not consider it was brought about by blasting or firing a shot. The witness's attention was directed to the 8th general rule, which bore upon the question of blasting in the mine. The shots, he said, were always fired at night, when the repairing shaft was at work. Gas was not found daily in the mine. Sometimes gas came out very suddenly, at other times there was a gradual squeezing out of gas, and the men would have warning of it. To Mr. Ward witness said there was no indication of a shot having been fired in the pit during the shift in which the explosion occurred.

To Mr. Dickinson witness said that a full train of coal in the main roadway would cause a considerable interruption of air. There were no trains in the roadways. There were some trains against the face of the workings, but these did not impede the air current at the points at issue. Had the air been shut off from any cause the men would have missed it. No workman was found after the explosion with a pipe in his possession, to his knowledge. It had been so reported, but witness believed it was false.

Mr. Ward wished to say that there was evidence that the fan was kept going at its proper speed when the explosion occurred.

Mr. E. James, a former manager of the colliery, and Mr. J. I. Green, manager of the Celynon Colliery, were examined. Messrs. Henry Hill, Richard Harley, Jonah Sage, Henry Carter, H. Harris, W. Watkins, Henry Seers, Arthur Meelish, John Sims, Aaron Crook, Wm. Hern, and other colliers all testified to the perfect ventilation of the colliery.

The Coroner enquired if there was any collier or workman who desired to be examined. There being no response, the Coroner adjourned the enquiry.

Mr. Evan Evans, the certificated manager of the colliery, was recalled, and, in reply to Mr. Wright, said that during the time he had had the management he had no knowledge of men using naked lights, or smoking, or striking matches. It would, in his opinion, be immediately discovered by the men if any man were to smoke. He could see no reason why men should strike matches; all knew the danger. The timber was properly put up, and all spaces were filled up between the timbers and the roof. He had never known any body of gas to accumulate in this way.

Mr. T. Foster Brown, C.E., of Cardiff, stated that he was the consulting engineer of this colliery, and had had 25 years' experience of mining operations. He was of opinion that in the ordinary operations of a colliery the mode in which the Risca Colliery was worked was as safe as in that room. He considered the system of ventilation perfect, so far as the present method and discipline of the colliery is concerned. He was in the pit in the month of April previous to the explosion, and had made a general survey of the workings. Was in Hill's and Wrentmore's and Dix's headings, and was satisfied with the improvements that had been made. Considered the ventilation good. Had no occasion to find fault with discipline of the colliery and the general system of ventilation. Had had occasion to speak in the highest terms of the management of Mr. Llewellyn, and regarded Mr. Evan Evans as a very able, hard working, and most painstaking manager. Mr. Brown proceeded to describe the conditions of the colliery, and gave his reasons why he had come to the conclusion that the explosion originated in Hill's and Wrentmore's heading, and from this point extended to all parts of the colliery, and caused the disaster. Tracing its effects, Mr. Brown concluded that there had been only one report and one centre of explosion, and not a number of explosions; otherwise the indications would have been different. In general, he regarded the explosion as from a sudden outburst of gas, and not the result of any defective ventilation.

A long discussion ensued between Mr. Dickinson and Mr. Brown as to the system of working the colliery, and also as to whether the longwall or pillar and stall system was the most advantageous. In different districts the conditions of a mine varied, but in a general way, he was of opinion that for this district the pillar and stall system was best. If they adopted a system of driving to the extent of the working and then work backwards, he had great doubt as to the feasibility of keeping the roadway open. So far as the Clanny lamp was concerned, he thought it would be desirable to exchange it for the Mueseler in consequence of the readiness with which these would go out. It was a much to the interests of the proprietors of this colliery that the explosion should be ascertained as it could possibly be to any one. Everything that could be done to ensure safety of the colliery would be carried out.

Mr. Dickinson remarked that the system to which he had alluded of driving to the extent of the workings and then working back was carried out in his district, and with immense advantage.

Mr. George Wilkinson, colliery manager of 35 years' standing, and manager of the Powell's Duffryn Collieries, stated that he had examined the Risca Colliery before and since the explosion. He expressed the belief that the colliery was well and most carefully managed. He preferred the Clanny to any lamp in general use. The long wall was preferable to the pillar and stall system in such a colliery as this. He did not approve of driving to the extent of the workings, and then working back, because it was unsafe so far as clearing off the gas was concerned. By the other system ventilation could not be rendered so completely.

Mr. Dickinson, Government Inspector of Mines for North and West Lancashire, stated that he had performed the duty of inspector for 30 years. He was deputed by the Home Secretary to attend the scene of this disaster, and he reached here on the morning of July 10. He proceeded to make an examination, and continued to do so from time to time, as the explorations proceeded. He had come to the conclusion that there had been from some cause accumulation of gas in Hill's and Wrentmore's heading, and also in Bright's and Sage's dip. He had started several theories as to the probable cause of the explosion. It might have been owing to the slackening of the fan from its regular speed, or by the non-closing of certain doors

located on the plan. There was probably three outbursts of gas, and it might be owing to a fall, a lamp might have been damaged, and it might have caused the explosion. He recommended that there should be an automatic register affixed to the fan, in order that it could at all times be ascertained at what speed the fan worked. He favoured the system of driving to the extent of the workings, and then working back. If properly carried out, this plan would be found to be best, and even if they had to take in rubbish to fill up the gob it would be found to be a great saving in timber. The cost of timber in this mine must have been something awful, and he did not know of a mine in which he had seen so much timber used.

Mr. Thomas Wales, Inspector of Mines for the South Wales district, stated that he had been 14 years a colliery manager, and 16 years an inspector. Was strongly of opinion that the explosion occurred at the top of Hill's and Wrentmore's heading, and that there was a sudden outburst of gas. He approved of the mode of ventilation in the colliery, and also of the longwall system. If the fan had slackened speed the colliers would certainly have known it, and he would have left their workings to get towards the pit's mouth. He attributed the explosion to a sudden outburst of gas, which became ignited from some unknown cause.

Mr. Cadman, Inspector for the South-Western district, gave evidence strongly corroborative of that given by Mr. Wales. He had about 20 years' experience in mining, and about seven years' as Government Inspector. He described the results of his inspection of the mine. Was inclined to the opinion that there was only one explosion, which fired the whole of the working. He did not think that the fan had been stopped, or the colliers would certainly have found it out. He agreed with the recommendation for a register to be affixed to the fan.

The jury then returned the following verdict:—That Thomas Bowden was killed by an explosion at the Risca Colliery, but how this explosion occurred the evidence had not shown. They were unanimously of opinion that the colliery was well managed.

Original Correspondence.

LEAD MINING IN WALES.

SIR.—Having just returned from a tour amongst the lead mines of Cardiganshire and the adjoining county, I am induced to send you a few particulars which may be interesting to some of the numerous readers of your valuable Journal.

On arriving at Frongoch I was at once conducted over the floors by Captain Paul, the captain of the mine, who was most energetic in bringing under my notice everything of interest that was to be found. It was much struck with the vast improvement that had been made in the machinery and in its arrangement since I visited the mine a few years ago. On that occasion it appeared to me as being a wonderful mine, with the most complicated arrangement of machinery spread over as large an area as was practicable, and the various parts having as little connection with each other as possible. Now all this seems to be reversed; everything is concentrated, the machinery all self-acting and of the very best description and the most approved construction, and I should say that it would do a great deal more work than formerly, with about 50 per cent. less manual labour. I saw an immense quantity of stuff on the burrows that had been treated by the old machinery and thrown aside as useless that is being dressed over again by the new machinery at a very large profit. I also saw large heaps of blende on the floors that had been thrown aside by the former owners, but which are now being crushed and dressed. I was much struck with the arrangements for driving the machinery, for besides the large reservoirs for water-power they have powerful steam-engines as auxiliaries, so that the mine need never be idle, even in frosty or very dry weather.

The stuff coming from the various levels underground was quite sufficient to convince anyone that the mine has quite as much of interest below the surface as above it. Blocks of solid ore weighing several hundredweights were brought to bank, and judging from the present condition of the mine I should say that notwithstanding the present ore sales the riches in reserve appear to accumulate faster than they can be taken away. Red Rock Mine is only a short distance from Frongoch, and on the same lode. Here I found all activity, and although, of course, this mine cannot boast of the vast resources of its fortunate neighbour, still the prospects appear to be very promising indeed. The machinery is here also of the best type and self-acting, and the arrangements on the surface all that can be desired. Some fine ore-stuff was coming from underground, particularly from the 23, where the ore bearing part of the lode is opening out rich, and showing great signs of improvement.

Leaving this valley I walked over the mountain to Grogwinion, and on the summit came upon the new eastern shaft, which was down about 10 fms. They are also rising and sinking simultaneously from the various levels, so that the shaft will be completed from top to bottom (about 150 fms.) in about two months. On arriving at the dressing-floors one could see that no time or labour was wasted. All was energy and perseverance, and the ore on the bank enough to satisfy the most exacting shareholder. I went to the bottom of the new shaft, about 9 fms. below the deep adit, and there saw such a rib of ore as would satisfy the most avaricious miner; and I can only say that if the lode continues in depth anything like as good as that which I saw, the dividends which have already been paid are a mere fleabite to what may be expected in the future.

Yatwith was reached after a pleasant drive of about four miles. Here the new workings are progressing very satisfactorily, and the shaft on Penyrulan lode is going down in good ground. Large returns have been made from this lode in the adjoining mine, and there is every reason to believe from what is to be seen in the various workings in this mine that a large measure of success may be anticipated.

Passing to Montgomeryshire I next visited the New Wye Valley Mine, situated on the Van lode. I went to the bottom of this mine—the 46 fm. level—and found at the bottom of the new shaft a very fine course of ore just under the large bunch they had in the 10 fm. level, and there is no reason to doubt that here the shareholders may look for a very large profit on their investment. The new shaft is completed, and I am informed that it has been carried through in two months less time than was originally anticipated, and at a cost of something like 1000*l.* under the estimate.

A WELSH INVESTOR.

MINING IN CARDIGANSHIRE.

SIR.—The writer on the continuation of rich mines gives us the benefit of his experience, and I do not think any practical miner would venture on a contrary opinion. There is no reason why a mine giving good returns should not be supplemented by others on the same lode, since there is no special lode or vein made for any particular mine, but a chance for all, be it east or west. The said lodes run magnetically east and west, and according to the Geological Survey made so far back as 1834 for the Government, we find the lodes running many miles. A mine is simply given a name to distinguish it, as in the Bwlch, which is on the same run as the Goginan and would still have been a mine even if called East Goginan. Your correspondent mentions these properties as an example, and it can be but satisfactory to all concerned that the Bwlch is being so actively developed, and I hear the eastern part of the sett towards Cae-Nant, &c., is likely to turn out large quantities of ore; also that they are nearing the great ore deposits at the western part. There are many good ventures only waiting for capitalists, and for those only who will see that their means are properly employed. It is too well known that in mining, as well as in every business, management is everything. When one sees the hardy, industrious men, with many dependent upon them, who are willing to work on very moderate wages, it is but natural to wish to see more capital employed in Cardiganshire. The minerals produced may not be gold, but they bring the same equivalent. Poverty debases and lowers the man and drives out of the country its thews. Investment in sound undertakings brings its own reward in increased prosperity; whoever helps it aids one of the primary industries, and one which has done more for civilization than anything else.—London, Aug. 26.

VERITAS.

[For remainder of Original Correspondence see this day's Supplement.]

DENBIGHSHIRE.

PARISH OF RUABON.

MESSRS. CHURTON, ELPHICK, AND CO. WILL SELL, BY AUCTION, at the Queen's Hotel, Chester Railway Station, on Saturday, the 28th of August, 1880, at Two for Three o'clock in the afternoon, in One or more Lots, as may be arranged, **A VALUABLE FREEHOLD RESIDENTIAL ESTATE,** known as

"GARDEN,"

Situate near the town and within a mile of the first-class Great Western Railway Station of Ruabon, and within easy distance by rail or road of the towns of Wrexham and Llangollen.

The Estate lies within a ring fence, and comprises the excellent gentlemanly residences of "GARDEN LODGE" and "PENYGDARDEN," with extensive outbuildings, gardens, pleasure grounds, and plantations, and several COTTAGES and excellent pasture, arable, and wood LANDS, and a VALUABLE QUARRY of FREESTONE, and contains in the whole about 160 acres.

At the same time, it is intended to OFFER FOR SALE the VALUABLE SEAMS and VEINS of COAL, IRONSTONE, and other MINERALS underlying the Estate, which are in lease to and actively worked by a company.

Adjoining the Estate are the properties of Sir Watkin Williams Wynn, Bart., William Cornwallis West, Esq., Henry Dennis, Esq., and others, and the turnpike-road from Wrexham to Ruabon forms the north-eastern boundary.

Plans and particulars are in course of preparation, and may shortly, with any other information, be obtained from the Auctioneers, Chester; or from Messrs. LONGUEVILLE, JONES, and WILLIAMS, Solicitors, Oswestry.

STOBROSS DOCKS CONTRACT, GLASGOW.

MR. ARTHUR TREVOR CROW (Contractors' Auctioneer) has been honoured with instructions from John Jackson, Esq., owing to the completion of the contract, TO SELL, BY AUCTION, at the Contractors' Yard, Stobcross Dock, Glasgow, on Wednesday and Thursday, 29th and 30th September, 1880, the WHOLE of the

VALUABLE CONTRACTORS' PLANT,

Which was bought new for this contract, and a large portion of which has been in use for a few months only, consisting of—

TWO four-wheel coupled 10½ in. cylinder LOCOMOTIVE ENGINES; ONE HUNDRED four yard END AND SIDE TIP WAGONS; Ballast trucks to permanent gauge; 24 powerful stone bogies; a quantity of 41 lb. temporary steel rails; also 25 lb iron rails; cylinder sinking machinery, with three 10 tons double cylinder steam winches and boiler; Lincoln-made portable engines, 6 and 8-horse power; about 900 tons cast-iron cylinder sinking weights; eleven 2 to 10 tons powerful steam derrick cranes, travelling on bogies, and with 63 ft. to 72 ft. jibs, by D. Cameron and Co., Glasgow; G. Russell and Co., Motherwell; and Morgan and Co., Kilwinning.

Powerful overhead steam traveller; several powerful centrifugal and pulsometer pumps; several thousand feet of red wood, white wood, and pitch pine balt timber, deals, and battens; steam pile driver; 200 tons scrap iron and metal; 5000 sleepers; a number of navy barrows; and a very large quantity of contractors' general plant and materials.

Sale to commence each day at Ten for Eleven o'clock to a minute.

Nearly the whole of the engines can be seen under steam on day of sale.

Descriptive catalogues may be obtained at Mr. Jackson's offices, at Stobcross Docks, Glasgow; and 4, Victoria-street, Westminster; and also from the Auctioneer's Office, Manor House, Sunderland.

DEVONSHIRE, ON THE BORDERS OF CORNWALL.

HIGHLY VALUABLE MINERAL, FREEHOLD, RESIDENTIAL PROPERTY, in the parish of BEERFERIS, near TAVISTOCK, in the immediate neighbourhood of Devon Great Consols, Okel Tor, Gawton, and other important Mines of Copper and Lead.

MR. J. W. JOHNS is instructed to SELL, BY AUCTION, at the Bedford Hotel, Tavistock, at Three o'clock in the afternoon, of Friday, the 10th of September next (subject to conditions to be produced at the time of sale), all that VERY VALUABLE FREEHOLD PROPERTY known as

THE RUMLEIGH ESTATE.

To be offered in Lots, unless previously disposed of in One Lot, comprising an area of about 293 A., including Rumleigh House, and most productive Farm Lands and Fruit Garden, all occupied at moderate rents.

The River Tamar forms the boundary on one side of the property, by which there is communication by steam-boat or other vessels up to 200 tons burden with Plymouth.

It is a matter of notoriety that valuable lodes lie beneath a greater portion of this property.

The above Estate presents an opportunity rarely to be met with for acquiring a most desirable Freehold Agricultural as well as Mineral Property.

The Minerals and Mineral Rights will be sold with the respective Lots.

The facilities for carrying out Mining Operations are exceptionally good, and the excellent wharfage on the River Tamar is a valuable feature in the development of the Estate, both agriculturally and commercially.

For further particulars, apply to Messrs. CARLTON and SOXS, Solicitors, Truro; Messrs. RAWLINS and SQUARREY, Salisbury, and 22, Great George-street, Westminster; and the Auctioneer, Mr. J. W. JOHNS, Truro; and to Mr. NORTHWAY, Bedford Hotel, Tavistock.

THE CEFN GOLAU COLLIERY, SWANSEA, GLAMORGANSHIRE.

MR. WM. H. REES is instructed to SELL, BY AUCTION, at the Mackworth Hotel, Swansea, on Saturday, September 11, 1880, at Three o'clock in the afternoon, in One Lot, the VALUABLE LEASEHOLD COLLIERY, known as the

CEFN GOLAU COLLIERY.

Situate at Gower Road, about six miles from Swansea, having direct communication by the London and North-Western Railway with the shipping ports of Swansea and Llanelly.

The total area of the mineral property is TWO HUNDRED ACRES, or thereabouts, and there are underlying the surface Four Seams of Coal—namely, the Hughes Seam, the Upper Hughes or Bwdwr Seam, the Slatog Seam, and the Curley or Letcher Seam; the first three being of the aggregate thickness of 10 feet or thereabouts.

Two of the Seams are being worked and another proved. The Colliery was opened in 1874, and about one-sixth only of the Hughes and Upper Hughes or Bwdwr Seams has been worked. The coal is highly bituminous, and especially adapted for gas, coking, and house purposes. The property is worked by incline drift 550 yards in length, and it is completely ventilated, and equal to an output of 200 tons per day, which by a comparatively moderate outlay may be largely increased.

The premises are held under an agreement for lease for unexpired terms of about 43 years, at a sleeping rent of £275 per annum, and royalties of 1s. per ton of 2520 lbs. for coal (subject to reduction of variation of selling price of coal), and 4d. for fire-clay, with three years average for rents and royalties, and a small annual rent for surface land.

The MACHINERY is in good working order, and comprises a pair of 22 inch horizontal winding engines, 3 ft. 6 in. stroke; two Lancashire boilers, 30 by 7; one egg-end boiler, 40 by 5; complete lift of pipes; three powerful Tangye pumps, with perfect fittings and connections; one locomotive engine; together with about 2½ miles of rails, above and underground; trams, screens, weighing machines, and other requisite plant and tools for the efficient working of the colliery, and the whole will be included in the sale.

There are stables, office, store-room, and other buildings, and an excellent supply of water for steam purposes.

The Colliery may be inspected on application to Mr. A. L. Pearce (the Manager of the Colliery), 36, Wind-street, Swansea.

Printed particulars, with Plans and Sections, and Inventory of Machinery and Plant, may be obtained of—

Neath, 12th August, 1880.

THE BEDLWYN STEAM COAL COLLIERY, ABERDARE, GLAMORGANSHIRE.

MR. WM. H. REES is instructed to SELL, BY AUCTION, at the Mackworth Hotel, Swansea, on Saturday, Sept. 11, 1880, at Three o'clock precisely, in One Lot, the VALUABLE LEASEHOLD COLLIERY, known as the

THE BEDLWYN COLLIERY.

Situate at Cwmaman, about three miles from Aberdare, having direct communication by the Great Western Railway system with the shipping ports of Swansea, Britonferry, Port Talbot, Cardiff, and Newport.

The total area of the mineral property is SIX HUNDRED AND FIVE ACRES, and there are underlying the surface Two Seams of Coal—namely, the Bedlwyn Seam and the No. 3 Rhondda Seam, of the aggregate thickness of 4 ft. 8 in., or thereabouts.

The Colliery was opened in 1864, and about one-fourth only of the Bedlwyn Seam has been worked. The coal is well adapted for locomotive purposes, and produces a strong coke, highly advantageous in the manufacture of steel. The coal has been won by level; the workings are thoroughly ventilated, and are equal to an output of 120 tons per day, which by a comparatively moderate outlay may be increased.

The property is held on lease for an unexpired term of about 40 years, at a fixed rent of £500 a year, and royalties of 5d. per ton of 2520 lbs. for coal, 8d. for ironstone and blackband, 4d. for fire-clay, 2d. for building stone, and 4d. for brick clay, and a way-leave rent of 1d. per ton. The royalties are to merge into the fixed rent.

The MACHINERY is in good working order, and includes a pair of horizontal WINDING ENGINES, cylinders 12 in. diameter, by 24 in. stroke, winding drum, with shaft gear, complete; wire rope; BOILER, 20 ft. by 5 ft., with fittings and connections complete; together with about seven miles of rails above and underground, and trams, screens, weighing machines, saw machinery, and other requisite apparatus for working the Colliery, and the whole will be included in the sale. There are stabling and other buildings, and an excellent supply of water for steam purposes.

The Colliery may be inspected on application to Mr. Thomas, the Manager at the Colliery.

Printed particulars, with Plans and Sections, and Inventory of Machinery and Plant, may be obtained of—

Neath, 12th August, 1880.

VALUABLE COLLIERY FOR SALE IN YORKSHIRE, working the well-known BARNSELY THICK COAL.

Apply, J. and P. HIGSON, 18, Booth-street, Manchester.

FOR SALE, A FIRST-CLASS SECOND-HAND 80 in. CORNISH PUMPING ENGINE, with several 11 ton BOILERS.

Apply, WM. BENNETTS, Roskear, Camborne.

COUNTY OF WICKLOW.

TO BE SOLD, BY PUBLIC AUCTION, on Tuesday, the 7th September, 1880, at Foley's Hotel, Wicklow-street, in the City of Dublin, at Twelve o'clock noon, the MINING COMPANY'S INTEREST in the LANDS and PREMISES, known as the

CRONEBANE COPPER AND SULPHUR MINES.

Situate at OVOCIA, one mile from railway station, six from Arklow, and ten from Wicklow, both seaport towns, containing 426 A. 0 r. 28 p., statute measure (some more or less), held in fee. Has been successfully worked by the Messrs. Williams and Co., since 1833, and now held by the Associated Irish Mining Company. The present sale is brought into the market by the death of two of the principal proprietors, and will all be sold as a going concern, with all MACHINERY and PLANT, as follows:—

ONE 22 in. cylinder ROTARY STEAM ENGINE, erected in 1872, with fly-wheel, winding cage; also ONE 10 ton BOILER, with fittings complete; two shaft tackles, with pulleys, 8 feet diameter, and about 350 fathoms 1½ inch round steel and iron wire ropes.

ONE 20 fms. 4 inch PLUNGING LIFT, complete, with wrought iron bob and 25 fathoms of 2 inch round iron rods, with pulleys and stands complete; about 800 fathoms of good chains, in sizes from ¾ to 1 inch.

THREE HORSE WHIMS, with head gear and pulley stands, in good working order; 150 fathoms of skip road timber; five iron skips; three large wooden sheds in good preservation; one large iron tube in miners' changing house; also wooden boxes, and every requisite for the comfort of the men changing their clothes, &c.; 428 fathoms of launders underground, containing about 120 tons of metal for precipitating copper from the mineral water.

About 20 tons of pig and scrap iron at surface, suitable for precipitating copper; six carts and one pair of new wheels; one large weighing machine, and tramroad underground; two smiths' bellows, two anvils, two vices, and smiths' tools; new and old steel; iron of various scantlings; carpenters' workshop and benches complete; also a lot of new and old timber, candles, nails, oil, new and old rope, shovels, miners' tools, chemical bottles, &c.; office furniture, stationary, and various other lots of miscellaneous property.

The present rents arising out of the miners' cottages and gardens attached amount to £82 11s. 4d. per annum.

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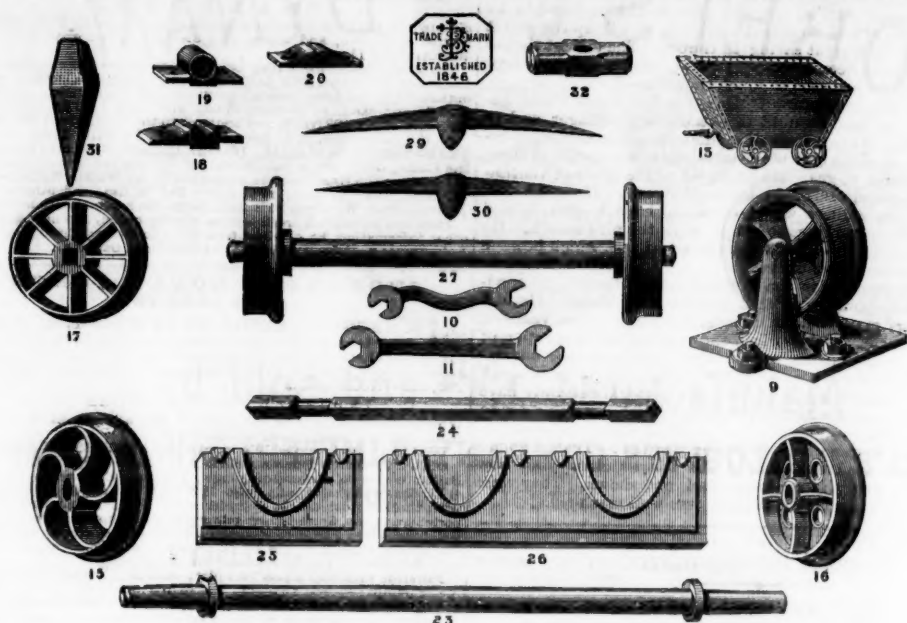
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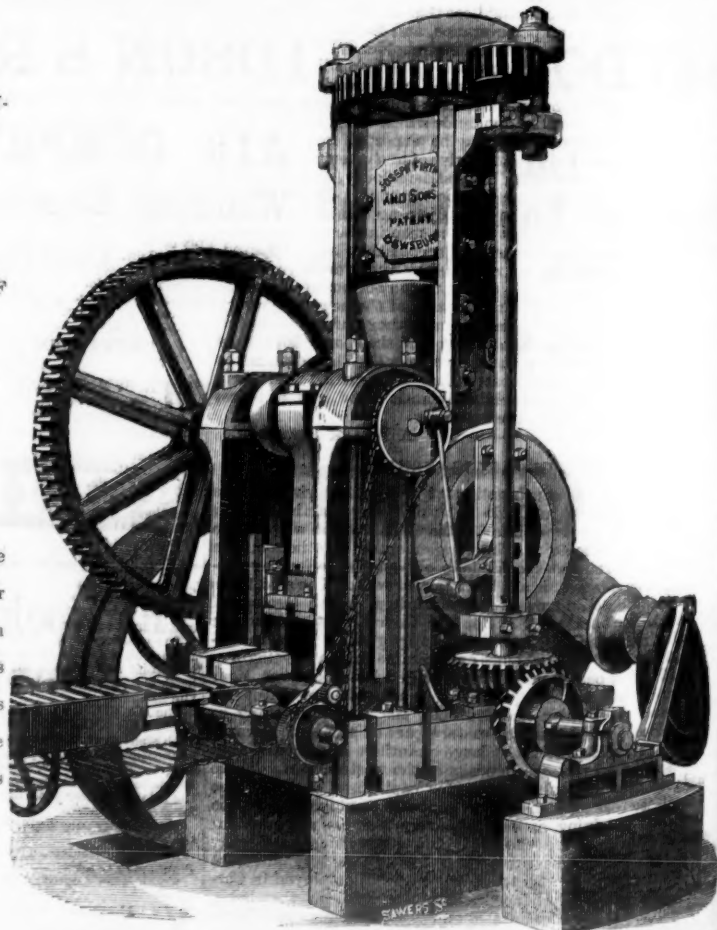
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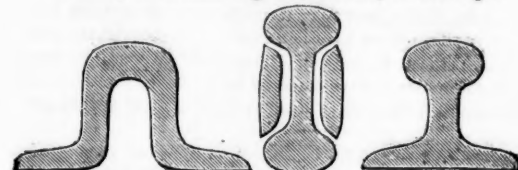
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1000000 Alamos, S. Spain	2 0 0	2 1/2	1 1/2	2 0 0	0 0 0	0 0 0
1000000 Alamos, S. Spain	2 0 0	2 1/2	1 1/2	2 0 0	0 0 0	0 0 0
1000000 Alamos, S. Spain	2 0 0	2 1/2	1 1/2	2 0 0	0 0 0	0 0 0
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6400 Crook Burn, S. Wales	1 0 0	1 1/2	1 1/2
14000 Crosswood Mining Lands, S. Wales	1 0 0	1 1/2	1 1/2
15000 Cwm Dwyfor, S. Wales	1 0 0	1 1/2	1 1/2
25000 Cwm Pryf, S. Wales	1 0 0	1 1/2	1 1/2
20000 Deep Level, S. Wales	1 0 0	1 1/2	1 1/2
1280 D'Eresby Consols, S. Wales	1 0 0	1 1/2	1 1/2
1024 D'Eresby Mountain, S. Wales	1 0 0	1 1/2	1 1/2
20000 Denbighshire Consolidated, S. Wales	1 0 0	1 1/2	1 1/2
12000 Derwent, S. Wales	1 0 0	1 1/2	1 1/2
100000 Devon, S. Wales	1 0 0	1 1/2	1 1/2
12000 Devon Great United, S. Wales	1 0 0	1 1/2	1 1/2
20000 Devonshire, S. Wales	1 0 0	1 1/2	1 1/2
10000 Dobby Syke, S. Wales	1 0 0	1 1/2	1 1/2
6000 East Botallack, S. Wales	1 0 0	1 1/2	1 1/2
6144 East Caradon, S. Wales	1 0 0	1 1/2	1 1/2
4000 East Chiverton, S. Wales	1 0 0	1 1/2	1 1/2
12000 East Crebor, S. Wales	1 0 0	1 1/2	1 1/2
15000 East Devon Cons., S. Wales	1 0 0	1 1/2	1 1/2
30000 East Florida, S. Wales	1 0 0	1 1/2	1 1/2
21000 East Roman Gravel, S. Wales	1 0 0	1 1/2	1 1/2
18000 East Van, S. Wales	1 0 0	1 1/2	1 1/2
1114 East Wheel Buller, S. Wales	1 0 0	1 1/2	1 1/2
30000 Flintshire Great Consols, S. Wales	1 0 0	1 1/2	1 1/2
10000 Fortescue, S. Wales	1 0 0	1 1/2	1 1/2
12000 Gawton, S. Wales	1 0 0	1 1/2	1 1/2
14000 Glenroy, S. Wales	1 0 0	1 1/2	1 1/2
20000 Great Dyffell, S. Wales	1 0 0	1 1/2	1 1/2
20000 Gt. E. Foxdale, S. Wales	1 0 0	1 1/2	1 1/2
12000 Great Holway, S. Wales	1 0 0	1 1/2	1 1/2
6000 Great Wh. Eleanor, S. Wales	1 0 0	1 1/2	1 1/2
20000 Griffin, S. Wales	1 0 0	1 1/2	1 1/2
9800 Gunnslake (Clitters), S. Wales	1 0 0	1 1/2	1 1/2
10000 Gwyn-y-Mynydd, S. Wales	1 0 0	1 1/2	1 1/2
10000 Harehope Hill, S. Wales	1 0 0	1 1/2	1 1/2
12000 Hartington Moor, S. Wales	1 0 0	1 1/2	1 1/2
6400 Harwood, S. Wales	1 0 0	1 1/2	1 1/2
30000 Herodfoot, S. Wales	1 0 0	1 1/2	1 1/2
18000 Hingston Down, S. Wales	1 0 0	1 1/2	1 1/2
6000 Killfret, S. Wales	1 0 0	1 1/2	1 1/2
30000 Lady Ashburton, S. Wales	1 0 0	1 1/2	1 1/2
15000 Lady Bertha, S. Wales	1 0 0	1 1/2	1 1/2
15000 Ladywell, S. Wales	1 0 0	1 1/2	1 1/2
5000 Lead Era, S. Wales	1 0 0	1 1/2	1 1/2
25000 Levant, S. Wales	1 0 0	1 1/2	1 1/2
10000 Lomax, S. Wales	1 0 0	1 1/2	1 1/2
5120 Lovell, S. Wales	1 0 0	1 1/2	1 1/2
15000 Llanidog, S. Wales	1 0 0	1 1/2	1 1/2
30000 Llanrwst, S. Wales	1 0 0	1 1/2	1 1/2
7500 Ditto, 10 per cent. pref.	1 0 0	1 1/2	1 1/2
9000 Marke Valley, S. Wales	1 0 0	1 1/2	1 1/2
18000 Mawton, S. Wales	1 0 0	1 1/2	1 1/2
6000 Medlyn Moor, S. Wales	1 0 0	1 1/2	1 1/2
28000 Mid-Devon, S. Wales	1 0 0	1 1/2	1 1/2
8000 Mineral Corporation of Gt. Britain	1 0 0	1 1/2	1 1/2
20000 Mostyn Consols, S. Wales	1 0 0	1 1/2	1 1/2
10000 Mynydd Girdle, S. Wales	1 0 0	1 1/2	1 1/2
25000 Moray Firth (18000 issued)	1 0 0	1 1/2	1 1/2
12000 Morfa Du, S. Wales	1 0 0	1 1/2	1 1/2
6144 Mount Carbis, S. Wales	1 0 0	1 1/2	1 1/2
4878 New Bronfloyd, S. Wales	1 0 0	1 1/2	1 1/2
12000 New Cathedral, S. Wales	1 0 0	1 1/2	1 1/2
2400 New Cook's Kitchen, S. Wales	1 0 0	1 1/2	1 1/2

NON-DIVIDEND MINES—continued.

Shares.	Paid.	Last wk.	Clos. pr.
8000 New Dolcoath, S. Wales	1 0 0	1 1/2	1 1/2
6000 New Killy, S. Wales	1 0 0	1 1/2	1 1/2
10000 New Llanfair, S. Wales	1 0 0	1 1/2	1 1/2
12000 New Penrse, S. Wales	1 0 0	1 1/2	1 1/2
3500 New Tincroft, S. Wales	1 0 0	1 1/2	1 1/2
6000 New West Caradon, S. Wales	1 0 0	1 1/2	1 1/2
3000 New Wheel Peavor, S. Wales	1 0 0	1 1/2	1 1/2
35000 New Wye Valley, S. Wales	1 0 0	1 1/2	1 1/2
10000 N. D'Eresby Mount, S. Wales	1 0 0	1 1/2	1 1/2
12000 North Herodfoot, S. Wales	1 0 0	1 1/2	1 1/2
20000 North Levant, S. Wales	1 0 0	1 1/2	1 1/2
6000 North Molton, S. Wales	1 0 0	1 1/2	1 1/2
6000 North Penrtrath, S. Wales	1 0 0	1 1/2	1 1/2
2336 North Trekerby, S. Wales	1 0 0	1 1/2	1 1/2
12000 Pandora, S. Wales	1 0 0	1 1/2	1 1/2
30000 Pant-y-Mwyn, S. Wales	1 0 0	1 1/2	1 1/2
8000 Paracombe, S. Wales	1 0 0	1 1/2	1 1/2
45000 Parys Corporation, S. Wales	1 0 0	1 1/2	1 1/2
7500 Pateley Bridge, S. Wales	1 0 0	1 1/2	1 1/2
15000 Ditto (also 7500 sh. not issued)	1 0 0	1 1/2	1 1/2
6000 Pedan-a-drea, S. Wales	1 0 0	1 1/2	1 1/2
6000 Penrtrath, S. Wales	1 0 0	1 1/2	1 1/2
5000 Penrtrath, S. Wales	1 0 0	1 1/2	1 1/2
12000 Pen-y-Orddra, S. Wales	1 0 0	1 1/2	1 1/2
12000 Plympton, S. Wales	1 0 0	1 1/2	1 1/2
10000 Polrose, S. Wales	1 0 0	1 1/2	1 1/2
10000 Port Nigell, S. Wales	1 0 0	1 1/2	1 1/2
12000 Prince of Wales, S. Wales	1 0 0	1 1/2	1 1/2
50000 Prys. Cambrian, S. Wales	1 0 0	1 1/2	1 1/2
30000 South D'Eresby Mount, S. Wales	1 0 0	1 1/2	1 1/2
35000 So. Devon Unit, S. Wales	1 0 0	1 1/2	1 1/2
6000 South Penrtrath, S. Wales	1 0 0	1 1/2	1 1/2
6000 South Roskear, S. Wales	1 0 0	1 1/2	1 1/2
6000 South Tolcarne, S. Wales	1 0 0	1 1/2	1 1/2
40000 South Wheel Crebor, S. Wales	1 0 0	1 1/2	1 1/2
2043 South Wheel Croft, S. Wales	1 0 0	1 1/2	1 1/2
4000 St. Just United, S. Wales	1 0 0	1 1/2	1 1/2
30000 Talbot, S. Wales	1 0 0	1 1/2	1 1/2
40000 Tamar, S. Wales	1 0 0	1 1/2	1 1/2
6400 Teesdale, S. Wales	1 0 0	1 1/2	1 1/2
10000 Temple, S. Wales	1 0 0	1 1/2	1 1/2
5000 Treleigh Wood, S. Wales	1 0 0	1 1/2	1 1/2
12000 Treveline Consols, S. Wales	1 0 0	1 1/2	1 1/2
6000 Truro, S. Wales	1 0 0	1 1/2	1 1/2
10000 Tyn-y-Fron, S. Wales	1 0 0	1 1/2	1 1/2
11000 Van & Glyn, S. Wales	1 0 0	1 1/2	1 1/2
10000 Vaughan, S. Wales	1 0 0	1 1/2	1 1/2
12000 West Assheton, S. Wales	1 0 0	1 1/2	1 1/2
6000 West Bassett, S. Wales	1 0 0	1 1/2	1 1/2
6000 West Caradon, S. Wales	1 0 0	1 1/2	1 1/2
3000 West Craven Moor, S. Wales	1 0 0	1 1/2	1 1/2
10240 West Devon Consols, S. Wales	1 0 0	1 1/2	1 1/2
12000 West Holway, S. Wales	1 0 0	1 1/2	1 1/2
6000 West Killy, S. Wales	1 0 0	1 1/2	1 1/2
5000 West Mary Ann, S. Wales	1 0 0	1 1/2	1 1/2
3000 Westminster United, S. Wales	1 0 0	1 1/2	1 1/2
20000 West Pateley Bridge, S. Wales	1 0 0	1 1/2	1 1/2
12000 West Phoenix, S. Wales	1 0 0	1 1/2	1 1/2
5190 West Poldice, S. Wales	1 0 0	1 1/2	1 1/2
10000 West Vor, S. Wales	1 0 0	1 1/2	1 1/2
2048 West Wheel Frances, S. Wales	1 0 0	1 1/2	1 1/2
3000 West Wheel Peavor, S. Wales	1 0 0	1 1/2	1 1/2
1000 West Wheel Towan, S. Wales	1 0 0	1 1/2	1 1/2
12000 West Wye Valley, S. Wales	1 0 0	1 1/2	1 1/2
6000 Wheel Agar, S. Wales	1 0 0	1 1/2	1 1/2
6144 Wheel Bassett, S. Wales	1 0 0	1 1/2	1 1/2
12000 Wheel Coates United, S. Wales	1 0 0	1 1/2	1 1/2
2535 W. Conford, S. Wales	1 0 0	1 1/2	1 1/2
6000 Wheel Grenville, S. Wales	1 0 0	1 1/2	1 1/2
12000 Wheel Jewell, S. Wales	1 0 0	1 1/2	1 1/2
2043 Wheel Jane, S. Wales	1 0 0	1 1/2	1 1/2
2000 Wheel Owles, S. Wales	1 0 0	1 1/2	1 1/2
6000 Wheel Prussia, S. Wales	1 0 0	1 1/2	1 1/2
12000 Wheel Russell, S. Wales	1 0 0	1 1/2	1 1/2
6000 Wheel Sisters, S. Wales	1 0 0	1 1/2	1 1/2
4096 Wheel Uny, S. Wales	1 0 0	1 1/2	1 1/2
21000 Ystwith, S. Wales	1 0 0	1 1/2	1 1/2

bl, blende; c, copper; g, gold; l, lead; s, silver; sl, slate; s-l, silver-lead; t, tin; z, zinc; i, iron; a, arsenic.
* Limited Liability Companies; † quoted on the Stock Exchange; ‡ have paid dividends.

NON-DIVIDEND FOREIGN MINES; FOREIGN AND MISCELLANEOUS STOCKS; TRAMWAYS; INSURANCE COMPANIES; GAS, IRON AND COAL, WAGON COMPANIES, &c.

NON-DIVIDEND FOREIGN MINES.

Shares.	Paid.	Last wk.	Clos. pr.
10000 Anglo-Espana, S. (5000 sh. 104.)	2 0 0	2 1/2	1 1/2
10000 Birdseye Creek, S. California	2 0 0	2 1/2	1 1/2
30000 Blue Tent, S. California	2 0 0	2 1/2	1 1/2
40000 Brazilian, S. Brazil	1 0 0	2 1/2	1 1/2
10000 Buena Ventura, S. Spain (42 sh.)	1 0 0	2 1/2	1 1/2
15000 Canada, S. Canada	1 0 0	2 1/2	1 1/2
82500 Canadian, S. Canada	4 0 0	1 1/2	1 1/2
34433 Cedar Creek, S. California	5 0 0	1 1/2	1 1/2
49935 Chontales, S. Nicaragua	2 0 0	1 1/2	1 1/2
15000 Colar, S. Mysore	1 0 0	1 1/2	1 1/2
15000 Colombian Hydraulic, S. Colombia	1 0 0	1 1/2	1 1/2
65000 Colorado United, S. Colorado	5 0 0	2 1/2	1 1/2
90000 Consolidated Mining	1 0 0	2 1/2	1 1/2
200000 Devla Moya, S. Wymad	1 0 0	1 1/2	1 1/2
100000 Don Pedro North del Rey	1 0 0	1 1/2	1 1/2
20000 English Australian, S. Victoria	1 0 0	1 1/2	1 1/2
100000 Exchequer, S. California	1 0 0	1 1/2	1 1/2
100000 Frontenac, S. Ontario, Canada	1 0 0	1 1/2	1 1/2
10000 Hornachos, S. Spain	1 0 0	1 1/2	1 1/2
12000 Huilafall, S. Chile, Orebro, Sweden	5 0 0	1 1/2	1 1/2
100000 Ind. Glenrock, S. Wymad (fy. pd.)	1 0 0	1 1/2	1 1/2
150000 Indian Mammoth, S. Chulimulla	5 0 0	1 1/2	1 1/2
100000 Isabella, S. California	1 0 0	1 1/2	1 1/2
100000 I.X.L., S. California	1 0 0	1 1/2	1 1/2
50000 Javali, S. Nicaragua	2 0 0	1 1/2	1 1/2